

J. M. Novell

TREATISE
ON THE
THEORY AND PRACTICE
OF
PHYSIC.

BY
GEORGE GREGORY, M. D.

WITH
Notes and Additions,
ADAPTED TO THE PRACTICE OF THE UNITED STATES,

BY
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"In morbis, sive acutis, sive chronicis, viget occultum quid, per humanas speculationes fere incomprehensibile." *Baglivi.*

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PART II.

CHRONIC DISEASES.

VOL. II.

i

PRELIMINARY REMARKS.



THE term chronic disease has been employed by physicians in a double signification, which, though sufficiently intelligible to those who have had opportunities of seeing disease extensively, may, without previous explanation, become the source of some embarrassment to the student. In the perusal of the preceding pages, this may perhaps have been experienced; but it is now more particularly necessary to clear up any such difficulties, as chronic diseases are henceforth to be the sole objects of investigation.

The term *acute*, in medical language, is in strictness applied to such diseases as run a short and defined course: —*chronic*, to such as are lingering, and of uncertain duration: but, in common discourse, acute and chronic are frequently taken in the sense of *febrile* and *apyrexial*, because febrile diseases, for the most part, run through their stages rapidly, while such as are unattended by fever are usually of long duration. There is sufficient foundation in nature for both these pathological principles to entitle the physician to employ the terms in such a sense; but it is necessary to apprise the student, that they are by no

means of universal application.* The history which has been given of consumption, of chronic rheumatism, and of chronic peritonitis, will be sufficient to show, that diseases attended with a certain degree or kind of fever, are sometimes tedious in their progress, and irregular in their periods and symptoms. In the present division of the work, it will be shown that the converse of this proposition holds equally true, and that diseases, unattended by fever, are sometimes rapid in their progress, and uniform in their symptoms. Apoplexy and hydrophobia may be taken as examples. These must be viewed, however, as *exceptions* to a general rule; or rather as facts supporting the opinion formerly urged (See Introduction), that the nature of the subject renders fruitless any attempt to give a *perfect* idea of diseases by considering them separately and piecemeal,—that is to say, as exclusively general or local, external or internal, acute or chronic.†

* [Every physician of experience will subscribe to the author's criticisms on those epithets, but he might have been more particular. Chronic inflammatory diseases are more numerous than is generally admitted, and are frequently unsuccessfully treated, for want of sufficient depletion, particularly by the lancet. The apprehension of a dangerous debility from evacuations is generally visionary. There are many cases of this description, which by long continuance may require the loss of more blood to subdue inflammation, which sometimes becomes habitual, than the acute affection of the same parts, in which you may put a period to the disease in a much shorter time, by more copious evacuations at first. The more acute, if they do not terminate by resolution end in disorganization; the chronic inflammatory affections more frequently end in secretions. Although there are many shades in inflammations and fevers, we cannot suppose there can be so much difference in their pathology, as in the quantity of disease. P.]

† The ancients called those diseases acute, which being seated chiefly in, and attended with a rapid ebullition of, the fluids, run their course quickly. On the other hand, they call such diseases chronic, as proceed from a vitiated condition of the solids of the body, or from preternatural

The general character of chronic diseases may be viewed as the reverse of that which distinguishes diseases of an acute kind. Throughout the latter a considerable similarity of pathology will have been observed to prevail. There is a remarkable uniformity also in their symptoms and periods. They run their course in a short time—often in a defined time. In all of them may be traced a disposition to terminate in the recovery of health. Medicine exerts over the greater number of them a very obvious power; and the principles of their treatment may, in most instances, be considered as tolerably well ascertained.

Chronic diseases, on the other hand, are very tedious: some of them may even be present in one shape or another during the whole course of life. In their progress they are very irregular. The protæan forms which they assume not only perplex the practitioner, but oppose, at the same time, the most serious obstacles to their accurate description. Though not commonly, or necessarily, accompanied by fever, yet feverish symptoms may arise in all of them, at any period of their course. Much obscurity pervades their pathology. The reasonings concerning some of them do not readily assimilate with the views entertained of other disorders. Lastly, the principles of treatment in chronic diseases are neither uniform nor well understood. In many instances they are wholly unknown; but were they even better ascertained, it is doubtful how far the physician could avail himself of such knowledge. In the cure of chronic diseases, indeed, neither fortune nor art avail him much. It is seldom that he observes in

grossness of the fluids, on which account they either move very slowly towards concoction, or else never reach it.—*See Baglivi de Praxi Medica, lib. ii. cap. 1.*

them any disposition to terminate spontaneously in the recovery of health ; and they are unquestionably much less under the control of medicines than acute diseases.

Although this may be the general character of the class of diseases which form the subject of the present division of the work, it is not on that account to be supposed that they are less worthy than others of attentive examination. The practical physician will find abundant occasion for the exercise of his skill, if not in the cure, at least in the relief of these complaints ; and to the pathologist, chronic diseases are an endless subject of curious investigation. Their history and pathological relations, indeed, involve some of the most abstruse and recondite points in medical literature. To lay open and explain these, as far as the author's knowledge extends, and the state of the science admits, will be a principal object with him in the present volume. Where he fails in throwing light on the difficulties which he may encounter, it will at least afford him satisfaction to have suggested fit subjects for the inquiries of those who may come more qualified for the task.

CLASS I.

CHRONIC DISEASES OF THE ENCEPHALON.

CHAP. I.

CHARACTER, GENERAL PATHOLOGY, AND CONNEXION OF THE CHRONIC DISEASES OF THE ENCEPHALON.

Of Neurosis, or disturbed Function of the nervous System, independent of Fever—Diseases arranged under this Head—Their chief Characters—Coma—Convulsion—Mental Aberration—States of the Brain in these Diseases—Chronic Inflammation—Congestion—Imperfect Supply of Blood—Affection of the Brain and Nerves independent of the circulating System—Pressure—Other Points of Connexion among the chronic Diseases of the Encephalon—Their Conversion into each other—General Principles of their Treatment.

THERE are not, perhaps, in the whole circle of medical science, any diseases offering so many interesting points of research to the speculative physician, as those which derive their character from disturbance of function in the brain and nervous system, independent of the presence of fever. They may be associated together as the diseases of *primary neurosis*, and they constitute a series, which it cannot but be useful to examine in the first instance in a general manner. It will be found that they have a

common character, and many points of mutual connexion. To explain these will not only be the means of preventing hereafter much needless repetition, but it will serve to impress upon the student the importance of those pathological relations among diseases, which serve equally to improve and to facilitate practice.

The diseases comprised in this series are, apoplexy, palsy, epilepsy, mania, chorea, tetanus, hydrophobia, neuralgia; to which may be added, syncope, asphyxia, hysteria, and hypochondriasis. Though deriving their character principally from a morbid condition of the nervous system, they are all more or less connected with disturbed function in other parts. The four last mentioned, however, are so intimately connected with disorder in other organs, that in the present chapter I shall merely keep them before me, with a view to some points in their general pathology, reserving their separate consideration to future parts of the volume.

Physiology teaches, that among the several functions of the brain and nerves, of which some are well, and others only imperfectly ascertained, the principal are, sensation, voluntary motion, and the manifestation of the mind. It is natural to expect, that from disturbance in them the chief characters of the *neuroses* should be derived; and accordingly we find that Coma, Convulsion, and Mental Aberration, are the three great classes to which we may refer the symptoms of these diseases.

1. Coma consists in the loss of sensation, thought, and *voluntary* motion.* In this state of disease, however, the

* [The "*abolition of sense and voluntary motion*," are said to constitute coma. It would seem strange that this definition should have been received so generally, when it is self evident, there are so many exceptions to its correctness that they are more numerous than the rule from which they arise. It seems probable, that sense is not entirely destroy-

organs of involuntary motion preserve their functions, and consequently it is by the continuance of the pulse and of the breathing, that we distinguish between coma and the states of syncope and asphyxia. But though in this manner we are enabled to mark the diagnosis between coma and the *disordered* conditions of body with which it is liable to be confounded, there are two states, consistent with health, from which it cannot be distinguished by such a criterion; I mean the states of *sleep* and of *intoxication*. In all cases of suspected coma, it is necessary for the safety of the patient and the credit of the practitioner, that this point should receive attention. If duly kept in view, there is no great probability of any error occurring; for it is inattention to the circumstance, and not any difficulty in deciding upon it, when once suggested, from which mistakes have originated. Coma is distinguished from sleep by the impossibility of rousing the patient by shaking, noise, or otherwise. The smell of the breath will, for the most part, be sufficient to characterize the state of intoxication; but in extreme cases there will

ed in coma, because the profoundest apoplectic will flinch when pricked by a lancet: he will withdraw his limbs from a strong degree of heat; and discover equal discomposure, if we put them in cold water. It is the impairment, and not the *abolition* of *sense* and *voluntary motion*, that should limit the definition of coma. Apoplexy cannot, with pathological propriety, be classed among the *neuroses*. This class has too often encroached upon the prerogatives of the heart and arteries. It will not be denied, that the remote causes of apoplexy affect primarily the brain and nerves; but for the proximate cause of the disease we must look to *venous* congestion which presses upon the origin of the nerves, and excites the action of the heart to impel the blood into the arteries and rupture them. It would be too vague an expression of the morbid state of the brain to call this condition nervous, while the patient is liable every moment to be hurled into eternity in the "twinkling of an eye." P.]

always be difficult, for actual coma may possibly have supervened. At all times attention should be paid to the circumstances which *preceded* the attack ; for by this means not only will ambiguity be prevented, but the physician will obtain such an insight into the causes of the disease and the habits of the patient, as will assist materially in directing his practice.

The abolition of sense and voluntary motion then constitutes perfect coma ; and it is the distinguishing feature of apoplexy, the first disease which will be noticed in the present series. It remains to state, that the loss of these functions is not always complete. Partial deprivations both of sensation, thought, and voluntary motion, occur in the chronic diseases of the brain, and they afford many of the most prominent symptoms of such disorders. Of this kind are preternatural drowsiness, or lethargy, paralysis of particular muscles, indistinctness of vision, amaurosis. They all are referable, however, to the general head of coma.

2. The second set of symptoms occurring in the chronic diseases of the encephalon, may be classed together under the head of convulsion or spasm. The state of convulsion is commonly defined to be that wherein the *voluntary* muscles of the body are excited into action by powers independent of the will. It is not, however, peculiar to those muscles. Not unfrequently those of involuntary motion are similarly affected, the diaphragm for instance, and smaller muscles of inspiration, as in asthma, or the muscular coat of the stomach or intestines, as observed in cholic. It would appear indeed as if no muscular fibres were exempt from spasmodic contraction, excepting those of the heart.

Of the voluntary muscles of the body it has been remarked, that those which are most immediately under the

influence of the will, and most frequently employed, are those principally affected in convulsive disorders; and the same observation will be found applicable to paralytic affections. Of this kind are the muscles of the eyes, eyelids, face, arms, and legs. Spasms of these muscles are observed in chorea, hysteria, and all the lighter forms of nervous affection; while spasms of the muscles of the neck, back, and belly, occur in tetanus, hydrophobia, epilepsy, and indicate a severer kind, or more aggravated *degree* of disease.

Convulsions have been divided into two kinds—the permanent, and that which alternates with relaxation; in other words, the *tonic* and *clonic*. Tetanus affords an instance of the one, Hysteria of the other. The distinction is of little consequence, unless coupled with the pathological principle that the tonic or *tetanic* spasm is a disease of infinitely more importance than the *common* or clonic spasm. The former arises from causes over which we have little or no control, and is, at all times, a state of the utmost danger; while the latter is very frequently little more than the evidence of a peculiarly irritable disposition in the nervous system, which may exist, even to a great extent and for a long time, without exciting any uneasiness for the ultimate safety of the patient. In all reasonings indeed concerning a disease accompanied with clonic or common spasm, it is necessary to look to the original constitution and temperament of the individual. There exists in some persons an *irritable* habit of body, a disposition in the system to be excited on slight occasions, and consequently, a more than ordinary tendency to *spasm*. This manifests itself even when any function of the body becomes, from *accidental* circumstances, disturbed. Such a habit of body has been denominated by some physiologists *the nervous temperament*. It is cha-

racteristic of the infantile period of life, and of the female sex. The distinction between this *irritable habit of body* and the *morbid state of convulsion*, though sufficiently apparent in common cases, is yet on many occasions a matter of considerable difficulty. In point of fact they will be found to run into each other by insensible degrees, constituting, as we shall afterwards show, one of the many interesting features in the pathology of epilepsy.

Independent of those convulsive actions of the whole body to which the term *fits* is popularly applied, there are a variety of *partial* convulsions, referable to this general head, which occur as evidences of chronic disease within the brain. Of this kind are, permanent contraction of the iris, irregular contractions of the muscles of the eye, constituting *squinting*, and the convulsions of the pterygoid muscles, commonly called *grinding of the teeth*.

3. The symptoms by which chronic disease of the brain manifests itself, may be referred, in the third place, to the head of *Vesania* or mental aberration. Of this disordered condition of the brain physicians have noticed many varieties. It may be either temporary or permanent; that is to say, it may assume the form of delirium or mania. It may be either general or partial; that is to say, the powers of thought may be completely lost, as in the case of *idiocy*; or some one faculty of the mind may be disturbed, while others remain perfect, or only partially impaired. Sometimes, for instance, the imagination labours under a strong and unconquerable delusion, while the memory is perhaps still enjoyed in full perfection. This constitutes the highest grade of mental aberration, and is the characteristic feature of *mania*. At other times the memory fails, while the powers of perception are still uninjured. This is a frequent consequence of severe injuries of the head, and of paralytic seizures. It is a

very common attendant also on that morbid change in the structure of the brain, which frequently occurs in the latter periods of advanced life.

Aberrations of mind, lastly, vary in their character and intensity. Sometimes they are attended with fierce excitement, violent aversion, and a disposition to commit acts of violence on themselves or those around them. At other times the delusion of mind is accompanied with a sense, hardly less formidable, of melancholy and settled despondency. To the lighter shades of this disordered condition of the mind, physicians have commonly applied the term *hypochondriacism*. Occasionally, we find maniacal aberration coupled with a perfect tranquillity and self-content.

After noticing the general character of the diseases usually called *nervous*, I proceed to inquire into the opinions commonly entertained regarding their pathology and proximate cause. And here it is to be remarked, in the first place, how manifestly a large proportion of such cases are connected with, and therefore probably dependent upon, certain disordered states of the *circulating* system. That this principle is not of universal application, I shall presently have occasion to show; but, in the mean time, it will be right to point out what those derangements of the circulating system are, which are so closely interwoven in the pathology of nervous diseases.

1. The first of these is *chronic inflammation* of the substance of the brain, or of its meninges.* That this

* [Every part of the body liable to acute is also susceptible of chronic degrees of inflammation. These states differ, not in kind but in degree. They both, in all their gradations, are primary, although the latter is often the sequel of the former, and they arise from the same remote causes. "Increased vascularity and serous effusion," are admitted in the text as consequences of this state of fever; and we would appeal to the

is the true *proximate cause* of many cases of chronic disease within the encephalon, is abundantly proved by the appearances found on dissection; which are, depositions of coagulable lymph upon the surface of the brain, thickening of one or more of the membranes, and suppuration. These *unquestionable* marks of inflammatory action are, however, but rarely met with, in comparison with two others, frequently adduced as evidences of the same state of disease;—I mean, increased vascularity within the cranium, and serous effusion between the membranes, or within the ventricles. These appearances are very common in different diseases, but in none are they so generally met with as in chronic affections of the nervous system. There are few instances, indeed, of any morbid change of structure in the brain existing without them. Pathologists have differed, however, in their estimate of

finest, most fastidious powers of discrimination, to shew us by what process such effects are produced; except by the same series of causes that induce the more palpable phenomena of inflammation. Why call such diseases "*chronic affections of the nervous system?*" Let us fix our attention upon the heart and arteries, and view the nerves only as the media of sensation. The "serous effusion," so often the concomitant of this inferior degree of action, sometimes explains the fact, that there are fewer of the appearances of inflammation to be observed. It lessens congestion, and exonerates the small arteries that would be dilated with red blood. These positions are exemplified in acute and chronic phrenitis. We find, under an inferior action of the heart and arteries, the deposition, not of serum, but a fluid *sui generis*, deposited upon the surface of, as well as in the ventricles of the brain; and occasionally a thickening of the membranes, and even suppuration; all of which facts can only be interpreted into so many of the effects of morbid vascular action. The fluid deposited under such circumstances undergoes some change in the act of extravasation, which alters it from serum to a fluid that will not coagulate (like simple serum) by heats nor acids. It would seem, that the arteries take on an action at least analogous to the glandular power of secretion. p.]

the importance to be attached to them, especially to that of serous effusion. The general opinion appears to be, that though it cannot be assumed as a proof of the existence of actual inflammation within the brain, it must yet be allowed to denote a degree of morbid *excitement* of the vessels of the brain, not far removed from inflammatory action.

2. The second of the morbid conditions of the circulating system, connected with nervous disease, is *simple congestion* of blood in the blood-vessels. This may arise either from an extraordinary flow of blood into the arteries of the brain, or from the difficulty experienced in the return of blood to the heart. The peculiar structure of the large venous trunks of the brain is calculated to lead, under certain circumstances, to *stagnation*, or, as it is now more commonly called, *venous congestion* in the head. That such a state of the circulating system in the encephalon does occasionally exist, there cannot, I presume, be a doubt; but it may be fairly questioned how far we are able to judge of its existence, with any degree of accuracy, by examination made after death. It is at least sufficiently ascertained, that that fulness in the vessels of the brain, so often found upon dissection, and supposed to denote *congestion*, depends in a great degree on the position in which the body had lain previous to examination.*

* [This term is not clearly explained by pathologists. When we say "it may arise from an extraordinary flow of blood into the arteries of the brain," we fall short of a full and proper view of the condition of the brain, especially of the veins. The violent impulse of the blood into the arteries seldom ruptures the arteries directly, but it so disables the sensorium, that the venous power becomes defective, and thus invite to congestion, which lays the foundation of future mischief.

There is probably more or less venous congestion, in all parts lo-

3. The third of those states of disease to which our attention must be paid in this inquiry, is *hæmorrhagy*. The rupture of a blood-vessel within the brain acknowledges many of the laws which affect other hæmorrhagies; but the want of outlet for the effused fluid, the peculiar delicacy of the structure of the brain, the importance of its functions, and, above all, the remarkable effects of pressure upon its substance, give to the *hæmorrhagia cerebri* an interest far superior to what belongs to any other form of hæmorrhagic disease. The symptoms produced by effusion of blood within the brain, are, with few exceptions, those of apoplexy; and the nature and varieties of cerebral hæmorrhagy will accordingly constitute the most important feature in the pathology of that disease.

[The propriety of the usual nosological classification of apoplexy may be justly questioned. That the causes first exert their influence on the brain and nerves, will not

cally affected in fever and inflammation. The nerves of the part are subjected from the remote cause to some impairment of power, and the veins which they support seem to participate in their weakness. An arterial congestion is, we judge, a rare occurrence; and it is probable never takes place for any considerable time. The arteries may be more distended at one time than another, but the power of the heart releases them at the expense of the veins, which being more passive, cannot rid themselves of their burthen. In cases of high excitement, congestions are removed by exonerating the circulating system. In cases of deficient action of the heart, (as in the cold stage of certain fevers,) it is removed by artificial excitement. The first is occasioned by the strength of the heart, and a want of power in the veins,—the second by a weakness of the heart, and a state of the veins nearly passive. This state of congestion does not occur in all fevers, for there are probably some without any local affection. We cannot always ascertain with certainty the existence of venous congestion, because all congestions are not accompanied by pain. The pulses and the tongue nevertheless sometimes indicate the presence of congestion. P.]

be denied, but we cannot explain the phænomena of the disease, unless we pursue the train of cause and effect throughout. If we follow this course, we find the heart taking an interest which is not to be overlooked, because our indications of treatment must be deduced from the state of the circulation as well as from the state of the brain. The condition of the brain before and after hemorrhage are distinct subjects of consideration. It is the first of those states that demands our attention, and requires all our energies and address to prevent the other; a disaster which we may prevent but cannot cure, unless the vessels ruptured be very few and small. The laws that govern other hemorrhagies control apoplexy, and occasion different phenomena, only in consequence of a difference in the functions of the brain and its appendages. Every part of the cerebrum, cerebellum, their investing membranes, and the medulla oblongata are the seats of apoplexy as well as palsy, which is only a chronic apoplexy, as to time, but not always as to action. The arteries have no inherent power of rupturing themselves. They are the servants of the heart and are insensible, possessed of as much life as will keep them from decay under their own peculiar organic law. If they were possessed of as much irritability as the veins, they would be unfit for the office they perform. A violent blow upon the cranium may rupture one or more arteries, and occasion compression, and consequent paralysis; but this is not the ordinary process by which the phenomena are brought about. All the other causes are so analogous in their *modus agendi*, that it seems difficult to find an exception. They uniformly tend to produce a similar result: viz. a remora in the venous powers. Without an impaired state of the veins, which admits of a morbid distention, and a consequent increased turgescence, (we

think) there can be no legitimate apoplexy; because without it, there can be no pressure upon the *origin of the nerves*, which constitutes the sine qua non of the disease: except from some cause altogether mechanical, which may be considered incidental, and extraneous. The difference between acute phrenitis and apoplexy will illustrate the pathology of the latter. In the former there is little or no previous venous congestion, but an enlargement of the serous arteries which become distended with red blood, while the parts are in a state of morbid sensibility. In apoplexy, the disease is the first instance—a state of congestion that becomes the exciting cause of the action of the heart, and the more energetic this action, the more powerful will be the force of the arteries; and hence they are ruptured, and blood is deposited either in the ventricles or partially in some other part. If the veins have been long congested or distended to a great degree, it may not be necessary that the heart should be highly excited. Under its ordinary action either a rupture of the small arteries may take place or a secretion of a serous fluid may be secreted, and thus constitute sanguineous or serous apoplexy: *apoplexia hydrocephalica*. We think those considerations place apoplexy among inflammatory diseases, although it would seem on a *prima facie* view to belong to the nervous system. P.]

4. The fourth morbid condition of the circulating system, observed in certain diseases of the nervous kind, is an *imperfect supply of blood*. The brain, like every other organ of the body, is dependent for the due exercise of its functions on the circulation. It can neither perform them properly when the supply of blood is too great, nor when it is defective. Syncope is the usual result of a want of due supply of blood to the brain; but convulsions occasionally arise from the same cause, as is well exem-

plified in the instance of puerperal hæmorrhage. It is not often that we have to apply this principle in the pathology of nervous diseases; but in a general view of the subject, such as we are now taking, it would have been improper to omit it.*

5. In like manner, it becomes necessary to notice a fifth state of the circulating system which is occasionally present in nervous diseases;—I mean the supply of blood imperfectly oxygenated, and therefore unfit for supporting the functions of the nervous system. This principle, it is true, like the last, is very limited in its application; but it enters into the pathology of apoplexy, and is the foundation of many of our reasonings concerning asphyxia.†

I have already remarked, that there are states of disease of the brain independent, as far as we can judge, of the circulating system.

1. The first of these is simple compression. This may arise either from a coagulum of blood, a soft tumour, a bony excrescence, a depressed portion of the skull, or the presence of some foreign body. The effects of pressure

* [In *irritable* habits, this cause occasions convulsions; in *mobile* habits, sometimes epilepsy, and frequently hysteria. They all take place occasionally in the convalescence from some fevers, especially in cases of great excitability, from the want of an exact accommodation of aliment or medicine to the exquisitely sensible state. P.]

† [Some of the gaseous fluids seem to act negatively in occasioning the results above noted. Nitrogen probably is of this number. Carbonic acid gas seems to exert a specific and powerful stimulus on the nerves of the lungs, although it may displace a portion of oxygen, and thus produce a privative effect. All the symptoms of a congested state of the brain are to be observed under the action of carbonic acid. We cannot speak so confidently of the effects of hydrogen gas: it seems to excite the sensorium, occasions headache, redness of the eyes, and coma, and probably may become the basis of apoplexy, by occasioning congestion. They all occasion asphyxia. P.]

vary extremely, according as it takes place *suddenly* or *gradually*. In most instances, as already observed, the symptoms occasioned by pressure on the brain partake of the *comatose*, or apoplectic character; but instances are upon record, particularly in the case of gradual pressure, where such a state has been followed by symptoms, not of insensibility, but of high nervous excitement—by mania and convulsions.*

2. There still remains to be stated one principle of very general application in the pathology of nervous disorders. Hitherto we have had some cognizable cause for the symptoms—the effusion of blood, inflammation, or the pressure of a tumour. But it is to be remembered, that there exists an affection of the brain and nerves equally independent of pressure, and of all disturbance in the circulation within the encephalon. The best illustration of this principle is afforded by the phænomena of the narcotic poisons, where coma and convulsion are produced by means, which obviously act on the sentient extremities of the nerves, and which, we may fairly presume, deprive the nervous substance of its *mobility*, or of its power of receiving or communicating impressions.† Such a pathological principle is necessarily obscure, from

* [The action of extraneous bodies on the brain, may either produce coma, apoplexy, epilepsy, mania, or convulsions. This variety may be referred in some to the previous condition of the brain, but it may also depend on the part of the sensorium immediately impressed. It certainly depends in some cases on the degree of compression, because there is sometimes to be observed almost an entire loss of sensation and of the power of voluntary motion, whereas in others, we find reiterated convulsions, acute headache, and frequently mania inflammatoria. R.]

† [That this class destroys life, by direct operation on the vital principle, through the sensorium, cannot be denied; and in a less concentrated degree it is equally certain, they predispose to convulsions and apoplexy occasionally, and often occasion coma directly. When long

the very nature of the functions concerned, but it will be found an indispensable one on many occasions; as, for instance, in any attempt at explaining the pathology of tetanus and hydrophobia, or in elucidating those varieties of epilepsy and chorea which depend upon the sympathy of the brain with some distant organ. The principle being once established, there remains no longer any difficulty in understanding why, in a great variety of cases of chronic disease of the brain, no morbid appearances of any kind are found upon dissection. This interesting fact, indeed, has been denied by some, and explained away by others; but it is too frequent and too obvious to be thus disposed of. The student in medicine may here receive an important lesson. He may learn from this, that the causes of *death* are often as obscure as the sources of life and health; and that morbid anatomy, with all its acknowledged advantages, may, if pursued too exclusively, injure rather than forward the conclusions of the pathologist.

The observations now offered on the character and general pathology of nervous diseases, will tend to point out the very intimate connexion subsisting among them. The same thing will be further illustrated by a view of their predisposing and exciting causes, by a consideration of their mutual conversion, and, lastly, by a survey of the principles of treatment applicable to the greater number of them. But before adverting to these topics, I would wish (without, however, going into any detail on the subject) to notice the attempts which have been made to connect

continued they gradually weaken the energy of the brain, and both through the stomach and directly on the brain occasion congestions. The variety of ways in which tobacco is abused furnish examples in abundance. p.]

particular symptoms observed during life with certain appearances found after death ;—in other words, to establish *minute diagnosis* among the morbid affections of the several structures contained in the encephalon. Pathologists, more especially those of recent times, have been at pains to distinguish inflammation of the arachnoid, from a similar affection of the other membranes ;—extravasation into the ventricles, from extravasation with laceration of the substance of the brain ;—disease of the anterior, from disease of the posterior lobes of the brain ;—injury of the brain, from injury of the medulla oblongata. It would be presumptuous to say, that attempts of this kind are altogether nugatory ; but it cannot be denied, that hitherto very little success has attended them ; that the rules laid down by authors are subject to such numerous exceptions, as to interfere greatly with their application in practice ; and lastly, that no reasonable hope exists of deriving from them, even if considerably improved, any portion of practical advantage.*

It is of more importance to trace the *analogies* among the chronic diseases of the encephalon than their minute shades of difference ; and we shall be assisted in this, in the first place, by considering the similarity, and even, in many cases, the identity of their predisposing and exciting causes. Mania, for instance, and epilepsy, are heredi-

* [These seem to us refinements which rather do credit to the industry and ingenuity of their authors, than service to the practice of medicine. Every portion of the brain, all its investments, together with the medulla oblongata, are the seats of apoplexy, differing it is true, in different subjects ; but all requiring a practical procedure predicated on the same principles. All these parts are complicated in certain cases of apoplexy ; and in the affection of either of the membranes how rarely do we find the arachnoid coat inflamed independently of the other parts of the membranes. P.]

tary. The exciting causes of epilepsy are for the most part those also of apoplexy and palsy. Chorea, hysteria, and many varieties of epilepsy have a common origin in a disordered state of the stomach and bowels. But in no way is the connexion among these diseases so strikingly displayed as in the circumstance of their mutual conversion, and in their manner of running into each other by insensible degrees. I have already alluded to this in the case of hysteria and epilepsy; but it is equally well marked with regard to palsy and apoplexy, syncope and convulsion, convulsion and mania, mania and apoplexy. One individual of a family has had epilepsy, while others have been deranged. Epileptics commonly die with comatose symptoms. Neuralgic affections are not unfrequently succeeded by amaurosis, or by apoplexy. Instances of this important principle in pathology need not be multiplied, as they must be familiar to all who have enjoyed any share of general practice.

It remains only, that I notice the principles of treatment applicable to the greater number of the diseases which are now under consideration; and it will be found, that the pathological analogies subsisting among them are strikingly confirmed by the effects of the *juvantia* and *lædencia*. The depleting and lowering system adapted to the particular circumstances of each patient, and the peculiarities of each disease, is that upon which the physician places his chief reliance; and it is, with some few exceptions, of powerful efficacy in all of them, whether exhibiting the character of coma, of convulsion, or of mental aberration. This is the great principle kept in view, whether we employ bleeding, purging, leeches, cupping, local cold, blisters, issues, and setons; or content ourselves with remedial means of a less formal though not less useful character, such as a cooling spare

diet, regular exercise, or a course of aperient mineral waters. By these means, early, steadily, and judiciously applied, we may often do a great deal towards the relief, or permanent cure, of the chronic diseases of the brain; while without them, and depending upon stimulants and antispasmodics, our expectations will be but too often baffled.

CHAP. II.

APOPLEXY.

Premonitory Symptoms—Varieties in the Apoplectic Seizure—Appearances presented during the Apoplectic Fit—Prognosis—Appearances on Dissection—Predisposition to Apoplexy—Exciting Causes—Speculations concerning its proximate Cause—Subdivision of Apoplexies—Treatment to be pursued during the Fit—Prophylaxis.

IN the last chapter, I had occasion to explain the sense in which physicians employ the term coma; and I then stated, that apoplexy is a disease of which coma constitutes the leading feature. Coma, or the abolition of the functions of the brain and nerves, may be the consequence of external injuries, or it may occur without any obvious assignable cause. In the former case, it is an object of attention to the surgeon, and is often remediable by a surgical operation. In the latter case, it falls under the cognizance of the physician, and is by him denominated spontaneous coma, or apoplexy.

It is very seldom that this dreadful visitation is experienced without the occurrence of symptoms to warn the patient of its probable approach. There are few instances, indeed, of any kind of severe disease occurring without some premonitory symptoms; but they are not often so unequivocal as those which indicate the apoplectic ten-

dency.* With a view to practice, such symptoms are of infinitely more importance than those of the fit itself; and they accordingly require the most serious attention from the physician. For the sake of perspicuity, they may be arranged according as they affect the head generally, the external senses, the internal senses, or the organs of voluntary motion.

To the first class belong pain of the head (generally a dull pain, with a sense of weight, but occasionally a more acute pain, accompanied with the feeling of the head being bound round by a cord or wire);—giddiness, particularly on stooping, or any attempt to turn the head quickly round;—throbbing of the temporal arteries. To the second class belong transient deafness, ringing in the ears, epistaxis, obscurity or irregularity of vision, transient blindness.—To the third, stupor, drowsiness, incoherent talking, a state resembling intoxication, disturbed sleep, failure of the memory, loss of temper.—To the fourth, twisting of the mouth, falling of the eyelid, numbness and weakness of a finger, dragging of the leg, stammering.

After experiencing, for a longer or shorter time, one or more of these warnings, the patient falls into the apoplectic fit; and Dr. Abercrombie has well described the several ways in which this takes place.†

* [The premonitory indications of apoplexy are very numerous, as stated by the author; but the shades between these precursors and the paroxysm perfectly developed, are very many. The patient often discovers a gradual falling off of the powers of sense and voluntary motion, and in all such cases a strict scrutiny into the state of the circulation will indicate the necessity of immediate blood letting. In this forming state we can do more by drawing twenty ounces of blood, than we can afterwards by three times that quantity. P.]

† Edinburgh Medical and Surgical Journal, vol. xiv. p. 554.

1. In the most usual form of apoplectic seizure, the patient falls down *suddenly*, deprived of sense and motion, and lies like a person in a deep sleep. He neither hears, nor sees, nor feels. Unconscious of every thing around him, he is alike insensible to the exertions of his medical attendants, and the anxieties of his friends. The suddenness of the attack is that feature of the disorder which most immediately impresses itself upon the notice of observers; and being so very general, the disease has from this circumstance in all ages received its name.

2. The second form of apoplectic seizure commences by a sudden attack of violent pain of the head, accompanied with paleness of the face, sickness at stomach, vomiting, and transient loss of recollection. The patient, in some instances, falls down in a state resembling syncope, but recovers in a few minutes, and is able to walk. After a few hours, however, the head-ache continuing, he becomes oppressed, and *gradually* sinks into perfect coma.

3. The third form of apoplectic seizure begins with a sudden attack of *palsy* of one side, with loss of speech, which after the lapse of some hours passes gradually into apoplexy.

[In such cases the paroxysm is only more perfectly displayed, in the form of distinctly repeated convulsions or a more aggravated degree of coma. Paralysis is only a symptom of apoplexy; and when the muscles are thus diseased, they only represent the diseased state of the brain which must always be preceded by compression of the nerves. Very slight pressure on the origin of the nerves will paralyze some bodies. It is impossible for hemiplegia to exist without some previous cerebral disturbance. When paralysis, rather than more formal symptoms of apoplexy are present at first, a critical attention

to the pulse will show a high impelling force of the heart.

The remark of Sir Gilbert Blane applies only to such cases as have proceeded slowly under a strong action of the heart. In sudden apoplexy we find the blood drawn from the arm firmly coagulated, and often highly fluid. There are chronic apoplexies, as respects time, but not altogether as to action; although the slower it proceed, the less inflammatory. P.]

In whichever way the apoplectic fit commences, there are certain appearances presented during its continuance, which merit attention. The pulse, at first, is commonly small and irregular; but as the system recovers from the shock, the pulse becomes full and strong, and is generally slower than natural. Respiration is much embarrassed, being always slow, and occasionally irregular. In all the severer degrees of the disease, this laborious breathing is accompanied by stertor; and a frequent appearance is that of foam, or frothy saliva, excreted from the mouth, and blown away from the lips with considerable force. This latter symptom has always been looked upon as indicative of the greatest danger.

The skin is commonly warm, and bathed in a copious perspiration. In the worst cases of the disease, a cold clammy sweat has been observed. The face is generally pale; the cornea dull and glassy; and the pupils permanently dilated. The teeth are closely clenched; and the power of swallowing, though seldom wholly lost, is for the most part so much impeded, as to oppose the most serious obstacles to the administration of remedies. The bowels are torpid, as is usual in all cases of cerebral oppression, and they resist the action even of powerful cathartics. If blood is drawn from the arm, the coagulum is commonly firm; and Sir Gilbert Blane has noticed,

that it is in most instances covered with the inflammatory crust.

The duration of the apoplectic fit varies from two or three hours to as many days. Thirty hours may be called the average duration of those cases which have fallen under my own observation. Instances, indeed, are on record of *sudden death* from apoplexy ; but in many of these there is reason to suspect, that the immediate cause of death was rather to be found in some affection of the heart, or large vessels in its neighbourhood, than in injury to the brain. Genuine apoplexy, commencing in the manner I have described, and attended with all the symptoms just enumerated, almost always ends fatally. When a recovery, either perfect, temporary, or partial, takes place, it will usually be found that some of the more decided evidences of perfect coma have been wanting : the patient has given evidence of feeling when his limb is grasped, or the lancet used ; the pupil has obeyed in a certain degree the stimulus of light ; the mouth has not been firmly closed, or the power of swallowing wholly lost ; there has been no stertor, or foaming at the mouth ; nor were the premonitory symptoms strongly marked. Under such circumstances our prognosis may be somewhat more favourable ; though it should even then be guarded by the reflection, that if recovery does take place, we must seldom expect it to be perfect. An incurable palsy may remain ; or the memory may wholly or partially fail ; or an imbecility of mind, approaching to mania, may be left. But besides this, in all cases where a decided apoplectic fit has been experienced, a relapse is to be dreaded, and recovery from a second attack is seldom if ever witnessed. "The pulse after being slow, strong and full, becoming small, frequent and intermitting is a dangerous symptom. Also the dilated or obstinately contracted pupil ; as cold

and profuse sweats are unfavourable. In proportion to the degree of stertor and foaming at the mouth is the danger from the malady. Bleeding from the nose, the hemorrhoidal vessels, or any natural evacuation appearing, as the menses, free warm perspiration, ptyalism, free discharge of urine, or diarrhœa, are favourable. Convulsions sometimes portend a fatal result; at others, an abatement of the disease: a pain in the head on the first attack, is considered as mortal.”*

The opportunities which the fatality of this disease has afforded to the physician, for prosecuting his researches into its nature and seat, have not been lost; and we have accordingly a most extended record of the appearances found on dissection in apoplectic cases. Their variety is very great, and must be fully appreciated before any attempt can be made to explain the pathology of the disease.† Extravasation of blood in some part of the encephalon, is by far the most common appearance, and is that which is generally to be anticipated. Such extravasation may take place between the membranes of the brain, on its surface, about its basis, within its ventricles, or in the midst of its substance. The quantity of fluid effused is as various as its situation; and the violence of the symptoms is found to bear a reference partly to the *quantity*, and partly to the particular *seat* of extravasation. An extensive effusion of blood is equally to be dreaded wherever it takes place; but a slight effusion is generally stated, and probably with justice, to be more dangerous

* See Cooke, p. 132-3.

† The student who wishes for further information on this subject, or on that of apoplexy generally, may consult with the greatest advantage the first volume of Dr. Cooke's "Treatise on Nervous Diseases," where, besides much useful original matter, he will find references to all the best authorities on these diseases.

in certain situations than in others. It is believed, for instance, to be much more alarming, and attended with more formidable symptoms, when occurring on the medulla oblongata, than in the anterior lobes of the brain.

The next most usual appearance in those who die of apoplexy, is the effusion of serum, either upon the surface of the brain, or within the ventricles. In some cases we meet with turgescence of the smaller vessels, or of the great sinuses of the brain, but without effusion either of blood or serum. "Pus, tumours of various kinds, encysted tumours, polypous concretions, hydatids, exostoses, and organic lesions are also found; thickening of the membranes of the brain, fulness of its vessels, and of those of the cerebellum, ossifications of veins, arteries, sinuses, and malconformation of the cranium have also been observed."*

[We have already suggested that we would deem it proper to denominate the disease apoplexy, when there is a state of compression either from congestion or the extravasation of blood; nevertheless we cannot but conclude that there is some difference in the process by which blood is deposited, and that by which a serous fluid is effused. That which is denominated serous apoplexy, is the result of secretion, under a lesser degree of action, and although this fluid acts as a cause of compression when secreted in a considerable quantity, it is deposited by a much slower process than blood, the effusion of which can only be effected by breaking the vessels. When this secreted fluid is found in the brain, a correct account of the symptoms will shew, that the patient had been indisposed for some time, previous to the appearance of apoplectic symptoms. We call this disease apoplexia

* Cooke on Nervous Diseases, p. 92.

hydrocephalica, and if the latter symptoms from compression had not appeared, we would have denominated it hydrocephalus internus.

That persons have died suddenly in a state of coma and a correspondent state of insensibility counterfeiting apoplexy, cannot be denied ; but we cannot admit that this state constitutes legitimate apoplexy, in which some marks of disorganization, or increased secretion will probably always be found upon a minute investigation. We judge that when no such appearances are to be found, post mortem, that the cause has inflicted so deadly a wound upon the sensorium, that neither congestion nor increased action could take place. Such is the case from electricity, from carbonic acid taken into the lungs, if they are highly concentrated ; and is it not probable that some other agents exert a power equally as despotic over the brain, and the sentient systems ? Certain poisons appear to occasion a similar state : such as Prussic acid and some others. They sometimes kill before inflammation can be excited in the stomach. Persons, who have died of intoxication from alcohol shew no marks of morbid action in the brain. P.]

These are the common appearances presented on examination of those who die of apoplexy ; and, considering their frequency, it is undoubtedly a surprising circumstance, that every now and then, after the most unequivocal symptoms, the head presents, on dissection, nothing morbid or uncommon. Some pathologists explain this by supposing, that effusion or disorganization may have taken place, but in a degree so minute as to escape observation. Others imagine, that more decided appearances may have existed, but were overlooked in the hurry of examination. A third class maintain, that there may be morbid phænomena present during life, which disap-

pear prior to dissection ; while others avow their persuasion, that in some other part of the body (the thorax, for instance, or spinal marrow,) the cause of death existed, and might by judicious examination have been detected. These arguments may have weight in particular cases, but their *general* tendency is disproved by an extended survey of the chronic derangements of the brain and nervous system.

The predisposition to apoplexy has attracted much attention from medical authors, and many contradictory opinions have been brought forward concerning it.

1. The tendency to apoplexy is given, in the first place, by certain *conformations of body*. The apoplectic *make* has been remarked, indeed, in all ages. A large head, a short thick neck, a florid complexion, broad shoulders, short stature, with a tendency to corpulency, are the prominent features of the apoplectic figure. This formation of body being often hereditary, a tendency to the disease may naturally be expected to prevail in particular families ; but independent of this hereditary predisposition from peculiarity of organization, there may exist a *constitutional* tendency to disease of the head, the knowledge of which may materially assist in forming a right judgment on the origin and probable tendency of particular symptoms.

2. The predisposition to apoplexy is connected, in the second place, with a certain *period of life*. Hippocrates said, that apoplexies were chiefly generated between the fortieth and sixtieth year ; and Cullen further remarks, that as life advances, the tendency to this disease increases. There is no doubt that in early life it is rarely met with ; but it is far from being uncommon between the twentieth and thirtieth year. By many pathologists it has been held, that the greater liability to the disease

at an advanced period of life, is owing to an ossified or otherwise diseased state of the coats of the cerebral arteries; which is stated to be then of frequent occurrence. It is supposed to give increased facility to extravasation within the encephalon, just as the same morbid structure in other parts is imagined to lead to aneurism. There is, probably, some foundation for this opinion, though it may have been pushed too far by certain of its supporters. While we are ready to acknowledge, then, that the rupture of a blood-vessel within the brain may sometimes be connected with a diseased state of the coats of the arteries, we must not, on the other hand, forget, that, in probably a *larger* proportion of cases, it is merely the result of a *morbid action* of vessels, analogous to that which takes place in hæmoptysis.

3. A predisposition to apoplexy is further given by such *habits of life* as tend to produce plethora generally, or to drive the blood in more than ordinary quantity upon the vessels of the brain. Hence it is, that full living, the free use of wine, habitual intoxication, sedentary pursuits, too great indulgence in sleep, and habits of intense and long-continued thought, have always been accused of leading to apoplexy.

“4. It is also connected with a leuco-phlegmatic and dropsical habit of body: Thus Portal states that there is a species of apoplexy, which is frequent in moist and cold countries, and is the consequence of catarrh and other pectoral diseases.”*

The principal *exciting* causes of apoplexy, are the distension of the stomach by a full meal, the immoderate use of wine or spirits, straining to evacuate a costive stool, ‘and in lifting great weights,’ violent exercise, very

* Cooke, p. 96.

long or loud speaking, severe fits of coughing, tumours 'and tight ligatures, as cravats,' on the neck, stooping, the recumbent posture, and, lastly, violent passions of the mind. It is a singular circumstance, that both heat and cold, when in an extreme degree, may occasion apoplexy. The coup de soleil of hot climates has been considered, on good authority, to be of the nature of apoplexy. The improper use of the warm bath has, under my own observation, brought on complete and fatal apoplexy. On the other hand, excessive cold produces a torpor and sleepiness, apparently of the comatose kind. This was strikingly exemplified in the celebrated adventure of Dr. Solander and Sir Joseph Banks on the mountains near the Straits of Magellan. The disposition to sleep is almost irresistible; but, in the emphatic language of Dr. Solander, whoever indulges it "wakes no more."

It belongs to this place to remark, that an apoplectic attack is not uncommon in the progress of other diseases. It occasionally occurs in fevers, 'diseases of the liver, spleen, dropsy, scurvy,' small pox, rheumatism, gout, 'worms, hysteria, epilepsy,' and hooping cough; and it is a still more frequent consequence of organic diseases of the heart, more particularly of such as are attended with a bounding pulse, and in their course become complicated with dropsy.

"Suppressed evacuations, as the menses, the piles, hæmaturia, chronic diarrhœa, and discharge from old ulcers also produce it."

I am unwilling to place in the catalogue of the exciting causes of apoplexy, some of those which have been mentioned by authors; because the very circumstance of naming them as such, involves the difficult question of the nature of the affection which they produce. To this class belong opium, tobacco, and the other narcotics; the car-

bonic acid, and other irrespirable gases ; certain poisonous vegetable matters (as the upas antiar, and woorara ;) and lastly, lightning. The consideration of their effects and of their mode of action will be reserved for discussion in the chapter on asphyxia.

In the remarks now offered, I have attempted, as much as possible, to confine myself to facts, and to avoid all allusion to the variety of opinions which have been entertained respecting the proximate cause of apoplexy, and consequently respecting the division of the disease into different species. These topics, however, must be acknowledged to be of no small importance ; and it will be my endeavour to lay before the student such a view of them, as may assist him in unravelling the difficulties in which this portion of pathology is involved.

It has been the great object of pathological writers to discover some one morbid condition of the brain which is present in every case of apoplexy. Some have stated this to be *effusion*. Others gave generalized further, and considered *pressure* as the real efficient cause of the apoplectic phenomena. A third class of pathologists have held, with Dr. Abercrombie, that irregular or *interrupted circulation* is the general principle applicable in all cases of apoplexy.

Each of these opinions has been supported by ingenious arguments ; and that in particular which attributes the disease to *pressure* on the cerebral mass or its appendages, is undoubtedly applicable to a very large proportion of cases. The proof of its applicability as a proximate cause *in all cases*, is however, even in this instance, highly defective. Extravasation of blood is the most usual source of that pressure which occasions apoplexy ; yet extravasated blood has been on several occasions found in the brain, without any comatose symptoms having exist-

ed during life. The same thing is even still better ascertained with regard to serous effusion and sanguine congestion, which are presumed to be the next most usual sources of pressure in apoplectic cases. These facts, taken in connexion with those which substantiate the frequent occurrence of apoplexy without leaving any cognizable traces of disease after death, appear to warrant the opinion, that the *single* principle so long sought for by pathologists does not exist; and that, in point of fact, the apoplectic state is the result of different morbid conditions of the system.

These speculative notions concerning the proximate cause of apoplexy have not been confined to the closet of the pathologist; they have given occasion to the subdivision of apoplexies into different species, important, it is said, in practice, as leading to diversities of treatment. By many of the distinguished systematic writers in medicine, great stress was laid on the division of apoplexies into *sanguineous* and *serous*, and the doctrine continues, in a certain degree, to influence the notions and practice of modern physicians. Certain symptoms have been described as peculiar to the serous apoplexy, and plans of treatment have been recommended, which are adapted only to that species of the disease.* These conclusions, however, are neither borne out by facts, nor rendered probable by pathological reasoning. The distinctive characters described by authors, are seldom met with so strongly characterized as to warrant an opinion concerning the exact nature of the case. Even where they have been the most distinctly marked, the appearances on dissection

* [No diagnosis can be formed from the symptoms; nor can the affection of the tunica arachnoides be distinguished from those of any of the other meninges. Such a punctilious refinement in a classical synopsis reflects no light on the treatment. P.]

have frequently disappointed the expectations of the practitioner. Pathological reasoning would incline us still further to distrust such distinctions, as it would tend to show that the effusion of blood and that of serum depend here, as in many other cases, upon the same general cause. As far, then, as they simply express a fact discovered after death, the terms *serous* and *sanguineous* may be admitted; but they can never with propriety be employed during life, under the impression of establishing more accurate diagnosis, or of facilitating practice.

If these objections apply to the old division of apoplexies into sanguineous and serous, there are others no less forcible, which may be urged against the modern distinctions of *meningeal* and *cerebral*, or of simple apoplexy, and of apoplexy complicated with paralysis. But these have never been formally acknowledged by any writers in this country; and no practical benefit, that I am aware of, would result from their adoption, were it even ascertained that there was a foundation for them in nature. I have, therefore, deemed it unnecessary to enlarge on the subject in a purely elementary work. "Apoplexy is distinguished from epilepsy by the complete absence of spasm in the limbs, by the stertorous breathing, and the long duration of the fit in the former. It is distinguished from syncope and asphyxia by the fulness of the pulse, which in syncope and asphyxia is wholly or nearly imperceptible. Carus and cataphora, more mild forms of apoplexy, differ from apoplexy in the degree of stertor; typhomania and lethargus are distinguished from it by the intensity of the sleep."^{*}

The doctrines here laid down are now to be applied to an illustration of the principles and details of treatment proper in apoplectic cases. From the remarks just offer-

* Cooke, p. 128.

ed on the distinctions of apoplexies, we may, in the first place, deduce one very important rule, viz. that all cases of apoplexy are to be treated on the same general principles; and that though the details must necessarily be varied, according to the age and constitution of the patient, the severity of the disease, or other accidental circumstances, there is no class of apoplectic affections which requires a *distinct* system of management. "The premonitory symptoms, fulness of the face, vertigo, as before detailed are to be treated by rest, bleeding, purging and sinapisms or blisters to the ancles or wrists: If the habit be full, topical and general bleeding will be necessary. In the aged and infirm, the first only will be requisite. If these symptoms have appeared in consequence of the stoppage of an habitual hemorrhage, from the nose or hemorrhoidal vessels, leeches to those parts will be advisable."*

In the actual paroxysm of apoplexy, the patient should be moved into a spacious apartment, and cool air freely admitted around him. His head should be raised; ligatures of all kinds, especially about the neck, should be loosened; and the legs and feet may with propriety be placed in warm water. A strong disease, however, as Aretæus observed, requires a powerful remedy, and blood-letting has at all times been resorted to as holding out the best prospect. Many objections have been urged against it; but it still continues, and must for ever continue to be employed. In the most aggravated form of the disease, indeed, neither bleeding nor any other remedial means can reasonably be expected to effect a cure; but there are no grounds for believing that, with common caution, the danger of the patient is *increased* by it. No one certainly would venture to advise repeated and indiscriminate ab-

* Cooke, p. 133.

straction of blood, without reference to its effects, or to any of those rules by which we regulate the application of the lancet in other cases. This would be a blameable empiricism; but at the same time the student should feel, that blood-letting is the only effectual remedy in apoplexy, and he should not be discouraged from it by any theoretical notions. The observations of Dr. Fothergill, and others who have opposed the employment of blood-letting, tend rather to establish the dangerous nature of the disease than the impropriety of the practice. We cannot, it is true, remove by this means blood which has been actually extravasated; but we may prevent further effusion, and lessen general compression. In slighter cases, we may relieve the excitement and tension of the vessels within the head, and possibly prevent effusion altogether.

On the first attack, therefore, blood should be drawn from the arm to the extent of one or two pounds; and this should be repeated in four or five hours afterwards, unless very unequivocal symptoms of amendment have appeared. The propriety of pursuing the evacuation further, must be determined by the peculiar circumstances of the case. It ought to be known, that from six to eight pounds of blood have been taken from a person, by no means robust, before the disease began to yield. On the other hand (as Dr. Latham has well observed, in commenting on the propriety of blood-letting in cases of sudden seizure,*) attention must always be paid to the *constitution* of the patient; and it must be borne in mind, that a practice highly proper in persons of corpulent habit, firm muscles, and florid complexion, would probably be detrimental in emaciated subjects, with flaccid muscles, cold extremities, and a small thready pulse.

* Transactions of the London College of Physicians, vol. vi. p. 248.

The advantages of opening the temporal artery or jugular vein, in preference to bleeding from the arm, have often been insisted on, but apparently without sufficient reason.* It is enough that the evacuation be made in a full stream, and carried to such an extent as to affect the system. Cupping from the nape of the neck is a powerful means of relieving tension within the cranium, and, as an auxiliary, may be resorted to in apoplectic cases with a fair prospect of advantage. In some constitutions, it may even supply the place of general blood-letting. "In violent cases, the blood should be drawn by many orifices both locally and generally. The use of external stimulants, as errhines, rubefacients, volatiles, is highly improper."

Every exertion is to be made to exhibit purgative medicines; but the clenching of the teeth and the paralytic state of the organs of deglutition often render this a matter of extreme difficulty. Some calomel, however, should be laid upon the tongue, and a strong infusion of senna with jalap given by teaspoonfuls, until a full effect has been procured. The operation of these medicines may be promoted by sharp purgative glysters.

"After bleeding has been fully employed, the pediluvium, frictions and sinapisms to the feet are advisable. The stimulating injections most proper are, turpentine rubbed up in the yolk of an egg; infusion of horseradish, mustard, &c. Portal recommends a solution of assa-fœtida."

Cold applications to the head have been found advan-

* "Bleeding from the jugular vein must be acknowledged to be the most speedy mode of diminishing the quantity of blood in the head. No ligatures should be made round the neck, as they will impede the circulation in the other veins."

tageous in some instances, and are certainly preferable to blisters.*

“The latter remedy is improper in the sanguineous apoplexy when the pulse is full and strong; it may, however, be used in leucophlegmatic cases, where the pulse is weak, small, and quick; the patient aged, and debilitated; then blisters to the head and neck will be useful; as also sinapisms, rubefacients, and frictions to the skin. United with cups to the head, cathartics, stimulating glysters, they constitute the most proper plan of treatment in this form; and when the patient is excessively debilitated, the volatile alkali, spirit. ammon. compos., infusion of horseradish and mustard seed may also be given.”

These are the only powerful means of *generally acknowledged* efficacy, which we possess in the treatment of apoplexy. The exhibition of *emetics* has, indeed, been extolled by some as highly useful, and even as superior to blood-letting; but the practice has never been generally followed; and there is no small difficulty in understanding how it could be carried into effect in those severe cases, to which it has been stated to be particularly applicable. In the instance of an apoplectic seizure immediately succeeding a full meal, an emetic might be advisable; but even under such circumstances, it would

* “Sub-Carbonate of Potass \mathfrak{z} viii.

Water q. suf.

to be used as a general revulsive, when the blood is determined too much to the head. (St. Antoine.)

Mustard foot bath. (Hospitals of Paris.)

Mustard flour \mathfrak{z} iv.

Water q. suf.

This bath is used in cases similar to the last. In apoplexy it will be found to be useful: its action, however, is rapid and transient.”

be improper to rely upon it to the exclusion of other remedies.

[We regret that we cannot subscribe to the utility of *emetics*, in any condition of apoplexy ; because they have received the unqualified eulogy of many of the most distinguished of the faculty, under certain circumstances of the stomach and brain. The abettors of the practice are now but few, and their supposed indications are reduced to a state of repletion which may become the exciting cause. Repletion can only act slowly, by repetition as the remote cause predisposing to venous congestion, or in the predisposed subject as the immediate cause ; and it is in the latter state that emetics are employed. It will not be denied, that the first effect of an emetic is to impel the blood more forcibly into the vessels of the brain, at a moment when we are bound by all the obligations of a just pathology, to restrain the impetuosity of the heart. This indication can only be answered by the lancet, which is the only emetic that can be safely employed, and is one which will always cause the stomach to eject its contents, provided the abstraction of blood be properly conducted, by being drawn through a large orifice and long enough continued. If the vital powers be not so far injured as to make recovery impossible, an emesis will follow ; and in the state of relaxation occasioned by the loss of blood, the operation will do less injury. In many cases of repletion, vomiting is spontaneous, but it never relieves the head, nor mitigates one of the symptoms of apoplexy. An emetic has probably sometimes arrested the disease before the existence of cerebral symptoms ; but we must take the necessary distinction betwixt the prophylaxis and cure ; and even in that predisposed state the lancet would do all that could be effected. Vomiting should be rejected, if it were only on the ground of in-

competency ; but it should be regarded as an unnatural offender against the laws of pathology, which always adds fuel to the flame that already glows with a vigor usually destructive. P.]

“ When apoplexy arises from narcotic poisons, or ardent liquors taken in excessive quantities, emetics become necessary ; such as, white or blue vitriol in large doses ; tartar emetic ; the extraction of the poison by a syringe and a tube. Large doses of emetics, as antimonial, or ipecacuanha wine, determine to the surface, and thus counteract the effects of the narcotic. The free use of acids, as the citric, are also useful, in counteracting the effect of the opium. These remedies, with acrid glysters of strong infusions of mustard, horseradish, &c., constant motion round the room, frictions with the flesh brush, beating the skin with rods, will be valuable, when too much opium has been taken.

“ But the remedy, which of all others has been found most efficacious, is the affusion of cold water over the surface ; it renders the system susceptible of the effect of emetics, and dispels the apoplectic stupor. These, with cups to the temples and back of the neck, hot bricks, cloths wrung out of hot water to the feet and to support the system, and spir. turpentine and volatile alkali after recovery has commenced, will be found to be valuable.

“ When mephitic air is administered slowly to the system, apoplexy is the result ; when it is given pure, the patient dies by the suspension of the power of the heart and lungs, and the case is a true asphyxia. When the pulse is full and strong in these cases, bleeding is indispensable : the face should be sprinkled with cold water freely, or the cold affusion used. The use of galvanism passed in shocks through the chest, is a doubtful remedy : the temperature should be kept up by warm blankets,

and hot bottles and bricks applied to the feet and legs ; and after the danger is over, it is necessary to keep up the strength by turpentine, volatile alkali, as patients often die from the consequent debility. When the disease supervenes on the retrocession of erysipelas, gout or rheumatism, it must be restored to its original seat. Warm fomentations, blisters or sinapisms to the parts originally affected, as the case may be, using at the same time cups, leeches, and general bleeding, if indicated by the constitution and strength of the patient, are then proper.

“ When the disease has been produced by the repulsion of a cutaneous eruption, bleeding has succeeded in mitigating the symptoms ; measures of an irritating character must be used to restore again the morbid action to the skin.

“ When it has been caused by the repulsion of the measles, small-pox, then the warm bath rendered stimulating by mustard flour, fomentations to the skin of brandy, camphorated spirits, or some irritating material, will be proper ; at the same time using venesection, ice to the head, pediluvia, hot bottles, bricks, &c. to the feet.

“ With regard to the treatment of catalepsy, the same remedies are applicable as in apoplexy ; the mind, its most frequent exciting cause, must be kept quiet ; cups to the neck and shoulders, fomentations to the head and breast, laxatives, as glysters, blood-letting, and purging, form the treatment.”

Apoplexy being so very fatal a disease, it is incumbent on the physician, in all cases where he has reason to suspect a predisposition to it, to employ steadily such *prophylactic* measures as are calculated to avert the danger. A cool spare diet, ‘ as the farinacea ; ripe fruit, as grapes, apples, prunes ; mutton, broths ; Portal objects to farinaceous substances, as a part of the diet of those who have

had apoplexy ;' abstinence from all fermented or spirituous liquors, regular exercise, abridging the usual number of hours allotted to sleep, keeping an open body, 'the mind quiet, free from all care, and all violent passions, as anger; bleeding and purging when any of the premonitory symptoms appear; more particularly in the spring and autumn; lying on hard beds, with the head raised;' and, in some instances, establishing a drain by means of an issue or seton, are those on which his chief reliance is to be placed. A blister to the shaved scalp will be found decidedly efficacious. Dr. Cheyne* speaks highly of the powers of antimonial powder in constitutions predisposed to this form of sanguine congestion and effusion.

* Dublin Hospital Reports, vol. i. page 315.

CHAP. III.

PALSY.

Relation of Palsy to Apoplexy—Distinctions among Paralytic Affections—Cerebral Palsies—Hemiplegia—Appearances on Dissection—Paraplegia—Partial Palsies depending on Disease of the Encephalon—Palsy independent of any Affection of the Brain—Palsy from Cold—From Lead—Treatment of Hemiplegia and of Paraplegia—of Amaurosis—and of saturnine Palsy.

MEDICAL authors have almost uniformly agreed in uniting the consideration of apoplexy and palsy, and there can be no question but that these diseases are, in many of their great pathological features, very closely associated. There are points, however, in which they as widely differ; and it will conduce to a clearer understanding of what is known regarding the nature and varieties of palsy, if it is treated of as a distinct affection. A vast number of very intricate questions are involved in the consideration of palsy. To all the difficulties connected with the pathology of apoplexy, are added many peculiar to itself. These it will be my endeavour to point out to the notice of the student; but I shall not consider it incumbent upon me to examine into the merits of the different speculations to which they have given rise.

A superficial survey of the phænomena of palsy would

lead to a distinction among the cases of this disease, into such as are connected with a morbid state of the encephalon, and such as are to *all appearance* independent of any affection of the brain. The former, being infinitely the most common, will in the first instance require attention.

The most perfect form of cerebral palsy is *hemiplegia*; in which the affection extends over the whole of one side of the body, from the head to the foot. Sometimes it takes the form of *paraplegia*, or of palsy of the lower extremities; and, in some rarer instances, the affection is confined to the loss of function in a particular nerve. Each of these varieties of cerebral palsy will require separate investigation.

1. Hemiplegia, to which form of the disease the term *palsy* is in common language appropriated, has generally been considered as a minor degree of apoplexy. The attack of it is sometimes unexpected, but more commonly it is preceded for several days, or even weeks, by one or more of those symptoms formerly described as the forerunners of apoplexy; such as giddiness, drowsiness, numbness, dimness of sight, failure of the powers of mind, forgetfulness, transient delirium, or indistinctness of articulation. For the most part, the paralytic seizure is *sudden*; but occasionally, the approaches of the disease are made more slowly;—a finger, a hand, or an arm, the muscles of the tongue, of the mouth, or of the eyelids being first affected, and the paralytic state gradually extending to distant parts. It is a common observation, that hemiplegia is, in most instances, preceded by a genuine fit of apoplexy; but this opinion will hardly be borne out by facts; and it is, *à priori*, rendered improbable by a comparison of the frequency of palsy, with the rarity and acknowledged fatality of apoplexy. It is true,

that the patient, on occasion of the paralytic *stroke*, is often observed to labour under more or less of temporary coma, but the apoplectic paroxysm is hardly ever complete. It will be found in practice, that palsy is much more commonly the *precursor*, than the *consequence* of apoplexy.

[We may imagine this position will be reversed, when we shall have made ourselves better acquainted with the pathology of apoplexy. Hemiplegia can only be the effect of a want of that sensorial power which is distributed to the nerves from the brain in health; and although all the more prominent symptoms of apoplexy may not be present, the paralysis clearly demonstrates that there must have been some injury done to the nerves at their origin which disabled them in the performance of their ordinary functions. If we do not adopt this theory, we are not able to account for the state of the nerves in which palsy consists. We observe many instances of palsy preceded by slight affections of the brain; but in all such cases if we had examined the state of the circulation, we would have discovered a tense pulse, a furred tongue, and great molestation of the sensorium. These indistinct premonitions, only require a minuter attention to discover their agency in the production of paralysis. P.]

It has often been remarked, as a very singular circumstance, that in hemiplegia, as well as in other varieties of palsy, the power of sensation should remain perfect, while that of voluntary motion is wholly lost. This curious fact has perplexed physiologists in all ages, and various theories have been offered in explanation of it. In the present state of our knowledge, however, regarding the functions of the brain and nerves, they must be considered as altogether hypothetical. Cases, indeed, have undoubtedly occurred, wherein sensation was impaired, as

well as the power of voluntary motion ; nor are there wanting instances of the total loss of sensation ; or of the loss of sensation on one side, with that of motion on the other. These latter, however, under the most favourable supposition, are so rare as hardly to merit notice. So far from there being *commonly* a loss of feeling attendant on palsy, it is not unusual to observe sensation morbidly increased. A disagreeable feeling of creeping, for instance, is occasionally complained of ; rheumatic pains affect the limb ; and blisters and phlegmons occasion the usual degree of inconvenience.

The temperature of the paralytic limb, as far as my own observation extends, is commonly preserved ; though to the patient's feelings it may sometimes appear hotter, sometimes colder than natural. On this subject also, a considerable diversity of opinion has prevailed. Mr. Earle* has found reason to believe, that paralytic limbs are of a much lower temperature than natural ; that they are incapable of supporting any fixed temperature ; that they are peculiarly liable to partake of the heat of surrounding media ; and cannot, without injury, sustain a degree of warmth, which to a healthy limb would not prove at all prejudicial.

I have commonly observed, that the pulse in the paralytic limb is weaker than that of the sound one.† The mouth in hemiplegia is always distorted, and a peculiar expression of countenance is given by the torpor of one side of the face. The saliva, in many cases, dribbles away ; and the tongue, when protruded, is turned to one

* Medico-Chirurgical Transactions, vol. vii. page 179.

† [There are many exceptions to this truth. The pulses in the paralytic side are frequently stronger than in the other. Doctors Faulkner and Zimmerman have noticed this fact, which is confirmed by experience. P.]

side. The speech is indistinct, and considerable difficulty is often experienced in swallowing liquids. After the disease has subsisted for a certain length of time, the muscles, apparently from want of use, shrink and waste, and become flaccid. Sometimes a degree of œdema supervenes, with a tendency to gangrene, especially on blistered surfaces.

In hemiplegia, the vital and natural functions are but little, if at all impaired. The bowels indeed are sometimes torpid; but there is no reason to believe, that the loss of nervous power extends, in common cases, to any of the internal organs. It is a curious circumstance too, that the senses are in general but little affected. The phænomena of hemiplegia, in fact, as Dr. Yelloly has remarked,* are principally confined to such parts as derive their nerves from the medulla oblongata and spinal marrow, and in this we may trace an important distinction between palsy and apoplexy.†

The mental faculties almost always suffer. Sooner or later the intellect is weakened, the memory is more or less impaired, and even the passions are sensibly affected. A mind which was once vigorous, firm, or placid, becomes, after a paralytic attack, weak, timid, capricious, and fretful. To these general rules there may be found, however, I am well aware, many exceptions.

Instances are on record of *perfect* recovery from the attack of hemiplegia, but they are extremely rare. Sometimes, as I have already mentioned, the paralytic seizure

* Medico-Chirurgical Transactions, vol. vii. p. 214.

† [This does not seem to designate any pathological difference between apoplexy and palsy. The nerves seem to be only ramifications of the brain, and it is probable, that the medulla oblongata and spinalis and their branches, are entirely dependant upon the brain, whence they derive their power. P.]

is only the precursor to a complete fit of apoplexy, which commonly proves fatal in a few days. The more usual progress of the disease, however, is characterized by a slow but gradual and imperfect amendment, continuing for two or three months, until the patient, with some support, is able to walk about, dragging along the paralytic limb.

After remaining in this helpless condition for some years, he either dies of an attack of apoplexy, or of some new disease. In a severer form of the affection, the patient never makes any advances at all towards recovery. For many weeks or months he is confined to his bed, and at length gradually falls into a state of lethargy, or coma, in which he dies.

The opinions already delivered, regarding the proximate cause and general pathology of apoplexy, apply also, in a great degree, to hemiplegia, as will be rendered evident by a notice of the appearances usually found on dissection of those who either actually die of palsy, or who during life had experienced one or more paralytic attacks.*

In those cases of paralysis which pass quickly into apoplexy, the common apoplectic appearances are met with; in most instances, extravasations of blood; but occasion-

* [Extremes of heat and cold, intemperance, sudden vicissitudes of temperature, drinking cold water, bathing in excessively cold water, violent passions, as grief, fear, anger, are the most common causes of hemiplegia. It often follows gout, rheumatism, scurvy, scrofula, and the suppression of customary evacuations, as perspiration, the menses, and the piles. Paraplegia principally originates from disease of the spine, as inflammation or destruction of a portion of the spinal cord, and concussion of the spine from tumours or from a clot of blood in the cavity of the vertebræ, and from a thickened and hardened state of the membranes in the cavity of the vertebræ of the neck.]*

* Cooke on Nervous Diseases.

ally serous effusion into the ventricles. In the more chronic forms of palsy, there is no appearance so common as discoloration, or some other diseased state of the corpora striata ; but various other organic læsions of the brain and its membranes have been also observed. Of this kind are—encysted suppuration, induration of a part of the brain, flaccidity and softness of a portion of its substance, effusions of serum ‘and pus’ in various parts and in various quantities, tumours, and lastly, clots of blood imbedded in the substance of the brain, or sometimes only cavities, in which it is presumed that such clots had formerly existed. The latter set of appearances have lately given rise to considerable discussion. It has been supposed that blood extravasated during the apoplectic or paralytic fit may in time become absorbed ; and that in proportion to the degree of this absorption, will be the more or less perfect recovery of the patient. These conclusions, however, appear to have been hastily drawn, for they are not borne out by more recent observation.

Much importance has always been attached to the singular circumstance of the morbid appearances presented by the brain having their seat in the side opposite to that of the paralytic affection. The fact was noticed in the writings of Hippocrates, Galen, and Aretæus, and its correctness is sanctioned by many modern authorities, more especially by the accurate observations of Morgagni and Dr. Baillie. Although exceptions to it have unquestionably been met with (notwithstanding the positive assertions to the contrary of some late French pathologists,) it must yet be acknowledged as a phænomenon of very general occurrence ; and from the earliest times attempts have been made to account for it. The notion of a decussation of nervous fibres was originally entertained by Aretæus, and applied by him in explanation of the fact.

The subject has since been often brought under discussion, but by no one in so elaborate a manner as by Dr. Yelloly, in the first volume of the *Medico-Chirurgical Transactions*.* The principle of *Decussation* seems to be generally admitted, but the difficulty consists in determining its seat; some placing it in the corpus callosum, others in the tuberculum annulare, the medulla oblongata, or the medulla spinalis. Pathologists have supported their respective opinions by much ingenious argument; but in the estimation of Dr. Yelloly, the preponderance is considerably in favour of that which makes the tuberculum annulare the seat of decussation.

It is not always that traces of morbid structure are discoverable in those who have suffered during life from hemiplegia; but this circumstance does not militate against the notion of an identity in the pathology of hemiplegia and apoplexy. Such an opinion, moreover, is corroborated by the identity of their predisposing and exciting causes; and, upon the whole, were it required to state in a few words the relation of these diseases to each other, it might be urged, that there *are* points of distinction between them, yet too obscure to be defined with accuracy; and that, in common practice, they may be safely viewed as modifications of each other.

2. Paraplegia, or palsy of the lower half of the body, though far less frequent than hemiplegia, ranks next in importance to it. The loss of nervous power is here entirely confined to the pelvis and lower extremities. This affection sometimes arises, as will hereafter be mentioned, from local causes injuring the spinal marrow; but it is as a disease depending upon some morbid state of the cerebral system, that I am now to consider it. Dr.

* Page 185, et seq.

Baillie is, I believe, the first who fully established the important pathological principle which I am now to illustrate, and to his paper I am indebted for the following outline of this variety of palsy.*

Cerebral paraplegia occurs chiefly in the middle or more advanced periods of life, and is more frequent in men than women. The approach of the disease is never sudden: at first there is only 'langour, listlessness,' a sense of numbness, with a stiffness or awkwardness of motion in the lower limbs, 'involuntary crossing of the legs, tripping and stumbling;' but by degrees the patient is unable to walk without support. As the disease advances, the urine passes off, at first in a feeble stream, and at length involuntarily. The bowels are costive, but from loss of power over the sphincters, the motions frequently pass unrestrained by the will. Patients in this complaint may live for a long time; but at the end of some years they usually die with their constitutions entirely exhausted. In a few instances recovery takes place. 'It often occurs in infants, from pressure on the spinal marrow by curved spine.'

The connexion of these symptoms with disease of the brain has been in some cases proved by dissection; and in others it has been rendered almost equally certain by the general symptoms of cerebral disease present at the same time. Dr. Baillie has seen paraplegia accompanied by giddiness, drowsiness, impaired vision, paralytic dropping of an eyelid, defect of the memory, loss of mental energy, and lastly, numbness and weakness of one or both of the upper extremities. These circumstances afford strong evidence that the cause of the disease exists within

* Vide Transactions of the College of Physicians of London, vol. vi. p. 16.

the cavity of the skull, and that it consists in some mode of pressure upon the brain.

3. There are a variety of cases in which the loss of nervous power is confined to a particular organ, or muscle, or set of muscles; and yet from the manner in which the affection begins, from the symptoms which attend it, and the course which it afterwards runs, it is obvious to the pathologist that the source of the mischief must be sought for in the great centre of the nervous system. Innumerable degrees of paralytic affection may be observed in practice, from the torpor and weakness of a single finger, up to complete apoplexy, in which sense and motion perish throughout the whole body. To enumerate these different partial palsies would be unnecessary: it is sufficient to say, that among the most frequent will be found amaurosis, or palsy of the optic nerve, palsy of the muscles of one side of the face, palsy affecting only the muscles of deglutition, and palsy of an arm, a hand, or a finger. It is wholly beyond our power to comprehend how it happens that a cause, operating upon the brain generally, should produce effects so partial and at such a distance from the actual seat of disease.*

The difficulties which we have to encounter in any inquiry into the pathology of paralysis, are greatly increased when the investigation is extended to those cases of general and partial palsy which are, to all appearance, totally unconnected with any derangement of structure or function in the encephalon. That such cases do occur is unquestionable; and it must be left to future inquirers to

* [When the palsy affects the auditory nerve, it is called *dysecœa* or *cophosis*; the nerves of taste, *ageustia*; that of smelling, *anormia*; those of touch, *anesthesia*.]

determine in what manner these apparent inconsistencies are to be reconciled.

In the year 1820, I had an opportunity of seeing an instance of general palsy of the kind now alluded to, the history of which is fully detailed in the London Medical Repository.* The disease ran a very singular course, terminating, after the lapse of above eight months, in the complete recovery of health. During the whole of this long period there did not occur one symptom which could warrant me in looking to the brain as the source of the disorder. The vital and natural functions were also undisturbed, nor was there any evidence of disease within the theca vertebralis. It is obvious, therefore, that this disease was, in its pathology, totally distinct from the ordinary forms of paralysis. A case very similar in its leading symptoms, but different in its termination, is recorded by Dr. Powell† in a paper containing many important pathological views of palsy. He brings forward this case among others, in support of the opinion, that paralytic affections, both partial and general, often originate in a peculiar condition of the *nerves alone*; that they are independent of any morbid affection of the blood-vessels of the head; and that they are produced in many instances by cold, and in some by sympathy with particular states of the stomach, or other distant local irritations.

There was a reasonable presumption that in the cases just quoted *cold* was the exciting cause, and the opinion is strengthened by a consideration of the frequency with which cold operates as the cause of paralytic affections of a more partial kind. The muscles of the face, of the arm, and of the foot, have often been found paralyzed by ex-

* Vol. xvi. p. 265, October 1821.

† College Transactions, vol. v. p. 105.

posure to cold, more especially when conjoined with moisture. Various instances of the kind might be quoted from the writings both of ancient and modern authors.* The union of palsy and rheumatism is a frequent occurrence in the lower ranks of life, and is therefore familiar to those who are in the habit of attending workhouses and parochial infirmaries.

There are many other causes of partial palsy, however, besides cold. Paraplegia depends, in a variety of cases, upon a diseased state of the spine, produced by mechanical injuries. The scrofulous incurvation of the spine to which infants and children are liable, is attended also in its progress by paraplegic symptoms. Partial palsy originates, in some instances, from long-continued exercise of particular muscles, or violence done to them. There is reason to believe, that occasionally it is connected with inflammation of the substance of the nerve, or of its covering, 'from the pain and tenderness, along its course.' There is a fourth class of partial palsies, which apparently depend upon some irritation in the bowels; 'they are attended with frequent stools, griping and spasms, previous to the attack.'

By far the most common, however, of all the causes of partial palsy, is the poison of lead, which appears to exert some peculiarly noxious power over the nerves of the forearm and hand. Innumerable instances of this, which has commonly been called the saturnine palsy, are met with among plumbers, painters, workers in lead-mines, manufacturers of white lead, and others whose occupation exposes them to the influence of this metal.† 'The fumes,

* Consult Dr. Cooke's excellent work on "The History and Method of Cure of the various Species of Palsy," pp. 64 and 95.

† For a full account of the peculiarities of the paralysis saturnina, I must refer to Clutterbuck, "On the Poison of Lead."

external application of lead in plasters, and lotions, will produce this species.' It is certainly a curious circumstance, that some constitutions should be so much more easily affected by the poison of lead than others. There are persons who, in a very short time, suffer severely from it in their general health, while others receive no injury, though exposed to it during a long series of years. 'Arsenic and quicksilver also produce palsy: the contact of the powder of arsenic to the fingers in making pills, is the cause of a more violent kind, than that produced by lead.'

Palsy is a complaint which, from very early times, has been considered almost incurable; nor have the labours of modern pathologists succeeded in removing this opprobrium from medical science. It is sufficient to mark the numbers of paralytic persons in our streets, to form an idea of the inutility of medical practice in this disease.

"Palsies happening in the spring and summer have been considered as more curable than those which take place in the winter or autumn. When palsy is attended with much wasting of the limbs, it is more dangerous. Boerhaave thought, that those palsies which take place nearest to the head were most difficult to cure; and he states, 'that those gradually descending from superior to inferior parts, are favourable according as they render the superior parts free from disease; but all palsies ascending from the inferior to the superior parts, are of the worst kind, and threaten apoplexy.' "

The close analogy existing between the pathology of apoplexy and that of palsy, has led to the employment of blood-letting, both general and topical, in every variety

* Cooke, p. 281.

of palsy, but more especially in hemiplegia; and very decided benefit has been occasionally derived from this practice. It is obviously best adapted for those cases which are attended with evidences of general plethora, or of strongly marked determination to the head. 'Sickness of the blood, youth, and strength of the constitution, also indicate active venesection. If on the contrary the patient is delicate, leucophlegmatic, dropsical, old, or feeble, it must be taken with caution.' The evacuation of blood, by cupping, from the nape of the neck is *generally* to be preferred to bleeding from the arm; but it is quite impossible to lay down rules for the administration of this remedy, considering how much must always depend upon the particular constitution and habits of the patient.

All authors agree as to the benefit which may be reasonably expected from cathartic medicines. Jalap, scammony, and the more stimulating purgatives, are to be preferred; and their combination with calomel affords a powerful means of relieving tension and congestion within the head.* 'Stimulating injections are very much relied on in Europe, and are no doubt often valuable.' Emetics have found many advocates upon the continent; but the partial advantages derived from them do not appear to counterbalance the inconveniences which they necessarily occasion.

Blisters to the nape of the neck have afforded considerable relief.

* [A salivation, (after the use of blood-letting, general or local) is probably the most valuable agent we can employ.—In all cases attended by a hard, tense, or slow pulse, we think that blood ought to be drawn as long as its loss can be tolerated without complete exhaustion. We think the use of setons or issues should be confined to cases which depend on the state of the liver. P.]

These observations apply to the treatment of hemiplegia in its early state. The system of treatment must of course be different, when the disease has subsisted for any length of time, and when all traces of affection of the head have ceased. Medicines of a stimulating quality have then been administered, with the view of rousing the torpor of the nervous power. Externally, physicians have had recourse to frictions, blisters, issues and setons, sinapisms, embrocations of various kinds, warm bathing, electricity, and galvanism.

“Frictions with the hand, or a flesh brush, long persevered in, produce the most beneficial effects, assisted by embrocations and liniments, such as the spirits of turpentine, volatile liniment; the fossil acids, combined with oil or lard, will be found to be useful.*

“Blisters and sinapisms after sufficient depletion also have a good effect: they should be applied to the side of the head opposite to that which is affected with palsy. Nettle and mustard are also recommended to excite the surface:† the mustard may be applied in the form of a bath, by infusing the bran of it in warm water.”

The waters of Bath and Buxton enjoy a considerable reputation for efficacy in paralytic cases.

“These waters are used both internally and externally. We are told by Dr. Cooke, that out of fifteen persons affected with palsy supervening upon apoplexy, a great number were dismissed cured. They operate principally by their temperature. Moderate cold applied for a short time stimulates the whole system, and is often useful in relieving paralysis: it is strongly recommended by Dr. Cullen.”

“Electricity has been used, but with various result.

* Cooke, p. 291.

† Ibid.

In those cases in which the brain is affected with fulness and determination to the head, the stimulus it communicates to the blood vessels is too powerful to render it safe ; it should not, therefore be directed to the head, as it will aggravate the disease.* It should be applied moderately, and frequently repeated ; and should be drawn from the part affected by sparks rather than by shocks. Drawing of the electricity by the wooden point will answer ; if not, those of metal may be used.† Dr. Cooke mentions a remarkable fact, observed by Cavallo, namely, that the application of electricity produced an increased discharge from blisters ; and suggests, that where blisters are attended with benefit, the electricity may be used in order to produce a more favourable discharge from them. Electricity generally produces a great amendment for the first few days ; the patients, however, soon relapse again into their former state.‡

“With regard to the use of galvanism, the experience of Dr. Bardsly furnishes the following conclusions : 1. That galvanism judiciously administered is a safe and powerful remedy in most paralytic diseases. 2. That it is superior to electricity. 3. That it agrees with electricity in its sensible effects on the body. 4. That when the brain must form part of the circle, the galvanic influence ought to be cautiously administered. 5. A week or ten days is sufficient for a trial of it. 6. A quicker and firmer pulse, increase of temperature, enlivened feelings, the secretions more natural, are circumstances which encourage us to persist in its use. 7. Where the patient has so much lost his sensibility and irritability as not to be stimulated easily, or where the cuticle is unusually thick, it will become necessary to excoriate the part, and

* Cooke, p. 294-5.

† Ibid. p. 295.

‡ Ibid. p. 296.

apply the electricity to the bare surface: the number of plates must then be adapted to the state of the sensibility. Dr. Bardsly thinks that in all cases where it depends upon a diminished state of the sensibility of the sensorium, galvanism is to be preferred to electricity. It is probable, that both may be useful, in certain cases, which is only to be determined by actual trial.*

“The use of the moxa has been highly praised by Dupuytren and others. That great surgeon succeeded in curing a case by applying the moxa to both sides of the vertebræ, near the first and second dorsal vertebræ.”

Internally, physicians have been in the habit of ordering tonic medicines of different kinds; more especially aromatics, volatile salts, the heating gums, chalybeates, bitters, and plants containing an acrid essential oil, such as mustard and horseradish. The following formulæ may be tried; but the prospect of advantage from them is not great.

R. Infus. armorac. compos. ʒi.

Spirit. ammon. aromat. ʒss.

Syrup. zinzib. ʒi.

M. f. haust.—to be taken every six hours.

R. Mist. camph. ʒvi.

Tinct. guaiac. ammoniat. ʒi.

Mucilag.—et syrup. a ʒi.

M. Sumt. haust. ter die.

R. Decoct. cinchon. ʒx.

Confect. aromat. ʒi.

Tinctur. cinchon. compos. ʒi.

M. Sumt. haust. quaq. quart. hora.

R. Infus. cuspar. ʒi.

Carbonat. ammon. gr. vi.

Tinctur. cinnamon. compos. ʒi.

M. Sumat. haust. bis die.

* Cooke, p. 297.

Besides these, medicines of a narcotic quality have been at different times recommended in the cure of palsy; more particularly the *nux vomica*, the *arnica montana*, and the *rhus toxicodendron*. That these drugs produce some very remarkable effects upon the nervous system, cannot be questioned. They will frequently occasion twitchings and convulsive motions, and a sense of tingling or pricking in the paralytic limbs; but these effects are, in many cases, rather painful than useful to the patient. Some instances are recorded of apparent benefit from them; but, upon the whole, they cannot be trusted to, and there is always some danger of their proving injurious to the general health.*

* [We think the author is here too decided in his conclusions on this subject. The *rhus toxicodendron*, as used by Dr. Alderson, gives some striking facts which not only prove its utility, but its safety as a remedy in palsy.

In the dose of half a grain of the powdered leaf given three times a day, and gradually increased to two, three, and four grains, he found that it produced some convulsive action in the parts thus acted on, and that the power of motion was restored to the leg and arm, as also the perfect use of the mental faculties.

The *nux vomica* resembles somewhat the last medicine in its effects upon the system: giving it in the dose of a grain three or four times a day, and gradually increasing it, it produces spasms in the palsied muscles, like those of tetanus; sometimes also accompanied by delirium, oppression, heat and anxiety, when given in large doses; loss of speech also, palpitation of the heart, and dysuria, are its results when given in too large doses. Its effect when salutary is to produce a gradual restoration of power to the paralytic parts. Others, however, have tried this remedy without success: at first it generally relieves, but afterwards it becomes so disagreeable as not to be borne. Sometimes after discontinuing the medicine, though it produces the most disagreeable effects, as faintness, palpitation, and great debility, the limbs go on to improve, and finally entirely recover. Mr. Fauquier advises the use of the alcoholic extract, in preference to any other form, in the dose of a grain in the form of pill. It must be given in such a dose as to produce some

'The treatment of cerebral paraplegia is to be conducted on the same general principles. Dr. Baillie states, that though no plan of treatment has proved very successful, yet that he has employed with advantage cupping, blisters, a seton in the nape of the neck, purgative medicines (consisting of the compound extract of colocynth, jalap, and the neutral salts), and an alterative course of mercurial preparations, 'as calomel, and the blue pill, with squills, in small doses. R. calomel. gr. i. scill. exsicc. gr. i. m. f. pill. i. capt. quaq. noct. or, for the calomel, substitute the blue pill in the dose of 5 grs. every night.' The same author further states, that in a few instances he has seen benefit from frictions to the lower limbs, continued for an hour twice a day, and in one case advantage was derived from electric sparks. He is disposed also to think favourably of tepid bathing both in fresh and sea water.

"When paraplegia proceeds from a morbid affection of the bones, pressing upon the spinal marrow, according as the curvature is backwards, or excurvated; or laterally; or incurvated, i. e. forwards, the treatment must vary.

evident effect upon the muscles.* It has been used by Dr. Baxter, of New York, with success, and is a remedy which deserves a trial.

The arnica is recommended upon the highest possible authority: Colin, Plenck, &c. speak in the warmest terms of it. It is given in the infusion made with 3iss to the pint of boiling water. It produced according to the dose emetic, sudorific, or diuretic effects: also lancinating and burning pains and a sense of formication in the paralytic parts.†

One grain of the powder of cantharides with a scruple of the volatile salt gradually increased; the same medicine united with guaiacum, and camphor, have produced beneficial effects: It must be used with copious mucilaginous diluents, freely taken to prevent its effects upon the bowels.‡

* Cooke, p. 299, et seq.

† Ibid. p. 304.

‡ Ibid. p. 305

When the curvature is backwards, the patient should be confined to his bed, and lie constantly on his belly; by this means, the bones are restored to their original position and the distortion is removed. After the bones have gained their natural position, and the palsy is restored, which may require two or three months, he may turn upon his back frequently throughout the day, for the purpose of exercising his limbs, and restoring those muscles which had been wasted during the paralytic state. Friction with the hand, and with the flesh brush must be resorted to, during the cure; as also as much motion of those muscles not affected with palsy as is possible. The limbs should be occasionally stretched by mechanical means; as by a windlass, or by assistants pulling at the lower extremities, whilst others counterextend the patient at the axillæ; at the same time pressure may be made upon the projecting bone, so as to reduce it to its natural place. In applying the frictions, flour, to prevent excoriation, or the camphorated liniment, or the volatile liniment may be rubbed over the skin to excite it. If, however, the ligaments are inflamed, which they most generally are in diseased vertebræ, the use of friction or extension is improper.

“In general, position according to the curvature, must be our principal reliance. On the face, when the bone is excurvated; on the back when it is forwards, and on the opposite side, when it is lateral.

When scrofula is the cause of the disease, the plan of Mr. Pott, by caustic issues placed upon each side of the spine should be tried: they may be made to the number of two or three, near the curvature. The use of purgatives, of cream of tartar, and jalap, as recommended by Dr. Physick, so as to operate freely every day, (the patient living on an excessively low vegetable diet,) will in general be found to be valuable. This with the use of frictions, ex-

tension, posture, long confinement to bed, sea air, bathing, and bark will be sufficient to complete the cure. As the disease is surgical, we refer to Bampffield, Potts and Shaw's treatise on this subject.

In the management of the different varieties of partial palsy, the physician must be guided by those pathological views which were recently adverted to. Some do not appear to demand any remedial treatment, while others are as decidedly benefited by the judicious administration of medical and surgical aid. It would be unnecessary to go into any detail on this subject; but in consideration of the frequent occurrence of amaurosis and of saturnine palsy, as objects of attention to the physician, I shall make a few remarks on the treatment particularly applicable in these cases.

AMAUROSIS.

This disease is sometimes attended with a gradual loss of sight, dilatation or excessive contraction of the pupil: in the latter case it is preceded by severe pains; sometimes motes and small bodies are seen floating in the air, or there is a mist* or a net work like black lace before the eye.

The remote causes of amaurosis are strong passions; as, terror, anger, exposure to intense light or heat; a stroke of lightning, inflammation of the eye, tumours pressing on the optic nerve; apoplexy, scrofula, epilepsy, or lues venerea; severe exercise, contusions, immoderate venery, drunkenness, irregularity of the digestive organs, suppressed hemorrhagies, eruptions, and old sores, fevers and poisonous cosmetics. In some cases the predisposition has been hereditary.

* Cooke, p. 308.

Very ample evidence has been brought forward by Dr. Vetch* and others, of the benefit to be derived from general blood-letting in amaurosis. Carried to the extent of producing syncope, it has proved, in many cases, the surest means of combating that congestive state of the deep-seated vessels of the eye, upon which the paralytic affection of the nerve appears mainly to depend. The necessity of this evacuation, however, is not to be judged of by the usual symptoms of ophthalmic inflammation. Its effects are to be assisted by the application of leeches, by purgatives and blisters. Mr. Travers, in the treatment of amaurosis, recommends in the first instance the employment of medicines calculated to regulate the functions of the digestive organs, and subsequently, such general tonics as the system can bear.

“As Richter, whose practice by emetics is given below, also has for his object the proper regulation of the stomach, and as Mr. Travers entirely disapproves of his plan, it is necessary to state exactly the mode adopted by Mr. Travers to effect this object. It consisted in the use of the blue pill, with purgatives of rhubarb, colocynth, aloes, and the combination of soda with rhubarb and columba or gentian. He also used the mineral acids with good effect; as also bark, steel, and arsenic. In recent cases Mr. Travers recommends the use of mercury, avoiding a salivation, which is always hurtful. Where the paralysis of the retina is attended with direct debility, and is proper to the nerve itself, and does not depend upon sympathy with the digestive organs, then blood-letting is hurtful.”

“The exhibition of emetics and purgatives, on the plan

* Practical Treatise on Disorders of the Eyes, by John Vetch, M.D. London, 1820.

pursued by Professor Richter, has been found to be exceedingly useful. Tartarized antimony, given in the dose of eight or ten grains, from the state of the stomach, produced but slight evacuations, operating only three or four times, and causing as many stools: purgatives of soluble tartar were used at the same time with the best effects. These medicines may be administered in the following manner: Dissolve three grains of tartrate of antimony in six ounces of water, and give a spoonful every half hour till vomiting ensue;* follow this next day with the soluble tartar, in doses sufficient to purge two or three times; if a bitter taste, yellowness of the eyes, or sickness at stomach should supervene, the vomit must be repeated to the third or fourth time; after completely evacuating the stomach, the following pills are to be taken:

R. Gum. Sagapen.—Galban.—Sapo. venet. a ʒi.

Rhei. optim. ʒiss.

Tart. Emet. gr. xvi.

Succ. liquorit. ʒi. fiant. pill. singul. gr. v.

Take three every morning and evening for a month. Schmucker.

Or these:

R. Gum. ammoniac.—Assafoetid.—Sap. venet.—Rad. valerian.—Summitat. arnic.—a ʒii.

Tart. emet. gr. xviii. fiant. pill. gran. v.

Six to be taken thrice a day for several weeks. Richter.”

“The effects of this plan is the gradual restoration of vision: sometimes this does not occur for many weeks; the iris then becomes more sensible to light. Combined with the above medicines, the stomach must be invigorated by the powder of bark, ʒi.; with valerian, ʒss. bis die. The use of mutton, beef, and fowls, soup, and other nourishing and digestible substances; exercise in the open air, with a moderate use of wine. These plans are at

* Cooper's Dictionary, Art. Amauros.

the same time to be assisted by the use of ammoniacal vapours directed against the eye, to be begun as soon as the stomach has been cleared; for this purpose a small quantity of the aqua ammoniæ may be dropped into an eye glass, and the eye held over it till it smarts: as soon as the tears begin to flow, the application may be omitted, and repeated in three or four hours: or an infusion of dried capsicum in water (one gr. to the oz.,) or the vapour of warm alcohol. Blisters may at the same time be applied to the nape of the neck, or setons and issues; friction on the eye-brow with Hoffman's anodyne liquor; electricity directed in a stream through the eye; sternutatives of turpith mineral, grs. x. with 3i. of the pulvis sternutatorius; of the powder of the arum root;* of common sugar, or liquorice. Corrosive sublimate in the dose of $\frac{1}{4}$ of a grain in gruel, continued as regularly for a month as the system will allow, taking care not to produce salivation, is found to be valuable. Mr. Hay speaks highly of electricity. Mr. Ware relates a case, in which the amaurosis succeeded acute pains of teeth and swelling of the face, in which electricity was of the greatest use. It should be applied gently for fear of exciting the eye too much. When the amaurosis is periodical, the bark aggravates instead of relieving it. The above plan of emetics, purgatives, and then the bark, perfectly succeeds in this variety.

The emetic plan also succeeds well in that kind of blindness induced by anger or other violent passions.

When it proceeds from a suppression of the menses, then the application of leeches to the labia pudendi, followed by the emetic purges and stimulating pills, as above, will be found to answer: leeches to the anus when it

* Cooper, Art. Amauros.

proceeds from a suppression of the hemorrhoidal discharge, will be a proper precursor to the use of the above remedies. Sternutatories are also advised : 1 part of turpeth mineral to 10 of mild snuff, is recommended. The vapour of ammonia, ether, and camphor, mixed with hot water, has been useful. Blisters, setons, the restoration of eruptions, have all been useful ; electricity, various tonics, as the bark, iron, arnica, have also been used with effect."

NYCTALOPIA.

" With regard to the definition of this disease, there is much confusion among the older writers : some stating that it consists in blindness during the day ; others, at night ; generally objects become dim about twilight, and at length invisible to those affected with this disease. It consists in a diminished sensibility of the retina, produced by irregularities of digestion, or by a strong continued light ; the pupil is accordingly less moveable, and more dilated than in the healthy state. It is particularly common in low latitudes, and often accompanies the scurvy. Treated according to the plan of Richter above mentioned, (see Amaurosis,) it can often be cured. That plan was followed by Scarpa.

" Purges are also mentioned as effectual in this disease. I have tried them in the Pennsylvania Hospital without the least benefit : the case finally yielded to emetics. In the case of the success of diarrhoea in this disease, related by Dr. Pye in the *Med. Obs. and Enquiries*, vol. i. copious vomiting came on shortly after the treatment was commenced ; after which he soon recovered his sight. Emetics are therefore the effectual remedies for this form of disease."

“When the disease depends on scurvy, it must be treated by its appropriate remedies.”

“Blisters to the neck, ammoniacal vapours to the eye, are also recommended; emetics, however, are our great sheet anchor.”

APHONIA.

“The muscles of speech are almost always affected in hemiplegia; palsy is sometimes confined to them alone. A case is related, in which palsy of the tongue occurred without any other disease: * the patient was very costive; the disease was removed completely by active purging and bleeding; after five or six dark foetid stools, the patient perfectly recovered. Stimulating gargles, embrocations to the throat, cathartics, local venesection from the tongue, sinapisms to the back of the neck, are said by Forestus to have cured the complaint.” †

DYSPHAGIA.

Mr. Hunter mentions a case, in which cupping, blistering the throat, with electricity, were used without benefit; a hollow flexible tube was introduced into the stomach, to administer nourishment; valerian injected into the tube was of service; afterwards ℥ii. of flour of mustard with a dram of tincture of valerian was given twice a day, and under this treatment the patient gradually recovered. ‡ The use of aromatics and the radix pyrethri have been recommended, also blisters and stimulating gargles.” §

PALSY OF THE BLADDER.

“Strong cathartics and stimulating embrocations, are recommended by Forestus in this form. He speaks highly

* Cooke, p. 315. † Ibid. p. 316. ‡ Ibid. § Ibid. 317.

also of castor: Blisters applied to the sacrum, and the tincture of cantharides in small doses, Dr. Cooke speaks favourably of: I have seen the latter used with great success in a palsy of this viscus occurring during a fever; I have also used it in an incontinence of urine, produced by a palsy of the sphincter in a boy; and have given it with success in the inability to retain the urine at night in children.

PALSY OF PARTICULAR MUSCLES.

“When this species of palsy arises from the state of the brain or spine, the remedies before recommended in general palsy are to be used, and they must be applied as near as possible to the part affected. When they are attended with pain in the nerves, frictions with laudanum, volatile liniment, spirits of turpentine, and blisters must be applied as near the nerve as possible; opium and colchicum at the same time internally administered have effectually cured it,* in the practice of Mr. Bell.” Mr. Healy, of Dublin, has found electricity valuable when it arises from sleeping with the head resting on the arm, which thus becomes paralytic.† The author of these notes succeeded in curing several cases of local palsy of the leg by obstructing the flow of blood into the limb, and suddenly loosening the pressure, after it had been continued for half an hour. The sensation and motion was in a short time restored to the limb.”‡

PARALYSIS AGITANS.

“This disease consists of a diseased state of the spinal

* Cooke, p. 317.

† Med. Record. vol. iv. p. 373.

‡ Philad. Journal, vol. i. p. 132.

marrow of the neck and medulla oblongata, and is described by Mr. Parkinson, as coming on with a slight trembling and weakness in some part of the body; the limbs gradually become affected, the muscles do not obey the will as promptly as formerly, and are seized with agitation: the body is thrown involuntarily forwards: the pace is quickened even to running, to prevent falling; the bowels become torpid, and require powerful stimuli; the power of swallowing is almost abolished; the urine and fæces pass involuntarily: and death soon closes the scene.* Local bleeding from the upper part of the neck; blisters applied near the same part; issues on each side of the vertebral column, and purgatives, form the treatment.† The latter remedy has succeeded well in Germany.”

BARBIERS (BERIBERI.)

“The barbiers or beriberi, is a species of palsy which appears on the coast of Malabar, and in Ceylon, during the rainy season, and is produced by the vicissitudes of the weather in those who have been dissipated, intemperate, or sedentary.

The symptoms are lassitude, formication over the body, stiffness of the legs and thighs, spasmodic contraction of the knees, and finally paralysis of the limbs, and of the organ of voice: the body becomes dropsical; with great restlessness and anxiety, livid countenance and cold extremities.‡

Perspiration is the first object in the treatment of the natives; a hot sand bath up to the chin is for this purpose advised; drinking punch in the mean time and rubbing

* Cooke, p. 318.

† Ibid. 319.

‡ Good, vol. iii. p. 305.

the skin with volatile and other stimulating medicines; and where the disease is violent, the strongest cordials are given, as, brandy, ether, and laudanum. As soon as the patient begins to get well he must be removed to a dry elevated situation; and use tonics, regular exercise on foot and horseback, and diet. Squill pills and James' powder appear to be well adapted to allay the dropsical and nervous symptoms."

PALSY FROM LEAD.

Mercury in the cure of saturnine palsy has found a warm advocate in Dr. Clutterbuck, who relates several cases in which its good effects were evident. From my own observations I should be inclined to form a very different estimate of its efficacy; and in its stead to recommend for general adoption the plan which I have known so successfully pursued in the hospital at Bath, viz. the application of blisters to the wrist; a warm bath twice in the week; warm pumping on the affected joint; occasional aperients, and the use of the battledore as advised by Dr. Pemberton; 'that is, a splint of that form tied to the arm, the broad part supporting the hand.' The drinking of the Bath waters may perhaps contribute to improve the general health; but I am persuaded that the only effectual system of treatment consists in the steady and long continued employment of *local* stimuli.

"The warm sulphureous waters of Bareges and Aix-la-Chapelle are celebrated for the cure of this disease in Europe: they are used both internally and externally. M. Bosquet, physician in chief to the Spanish army, trusted almost solely to the sulphureous waters of a spring in a village near Ferrol, both for the cure of the colic and the palsy produced by lead.*

* *Traite de le Colique Metallique* par Merat. p. 201.

“Galvanism and electricity have been tried, but with very uncertain effects.* The nitrate of silver has been used with success, in the dose of from one to five grs. three or four times a day, preceded by a dose of castor-oil. If it purges, opium becomes necessary to be used in combination.†

“The diet in palsy should be light, nutritious and easy of digestion; mutton, beef and fowls, with but little stimulus. The patient should exercise freely in the open air, and wear flannel, keep his feet dry, amuse his mind, and abstain from all excesses, and from fatigue. The bark, bitters, as quassia, &c. also should be occasionally used.”

DEAFNESS.

“Deafness is produced by many causes: as, inflammation and ulceration of the tympanum, or other parts of the internal ear; palsy of the auditory nerve, fever, syphilis, wax blocking up the external passage, stoppage of the eustachian tube, malconformation of the ear, suppressed perspiration, as in common cold; in new born children, from the stoppage of the ear by mucus.‡ When it proceeds from inflammation, and ulceration, or malconformation of the ear, the case is hopeless. If it proceed from suppressed perspiration, accompanied by a common cold or rheumatism; the plans recommended for these diseases will relieve it: as low diet, bleeding, sudorifics, rest, keeping the head warm. If it proceed from hardened wax, it should be removed by a probe, or milk and wa-

* Percival's Med. Essays.

† Lond. Med. Transac. vol. v. Art. 4.

‡ Portal Med. Record. p. 636.

ter may be injected into the ear three or four times a day with a syringe. When it is accompanied by a suspension of the secretion of wax in the interior of the meatus, some fly ointment put into a gauze bag, and introduced into the bottom of the ear will excite the secretion; electricity or galvanism, may also be tried; or some volatile linament may be dropped into the ear. Ether is recommended as a useful stimulant in cases where the defect is not apparent but is owing to debility of the general system of the ear: It is recommended to be freed well from the sulphuric acid, by distilling it over manganese, a matter of little consequence as the object of the preparation is to irritate the ear. When the disease proceeds from palsy of the acoustic nerve, emetics may be tried, giving twenty grs. of ipecacuanha every other day, and following it by tonics of chamomile tea ʒii. with the $\frac{1}{8}$ of a gr. of corrosive sublimate in each dose, or by 10 or 15 grs. of assafœtida with columbo and ginger, of each 15 grs. three or four times a day. A salivation is sometimes useful: the palsy of the nerve is known by the patient not being able to hear when a watch is put between the teeth. Electricity and galvanism have also cured this form. When it proceeds from a stoppage of the eustachian tube, closing the mouth and nose, and blowing a strong breath into the tube, by a violent expiration, will open it, and produce immediate relief: injections of warm water may also be made into the tube, or the membrane tympani may be punctured as recommended by Astley Cooper. When the disease proceeds from the closure of the eustachian tube, it is known by there being no cracking noise on blowing into the ear, as above directed; by a cold preceding the deafness, by the absence of all noise in the head, like that of nervous deafness, by the disease coming on slowly, by the patient hearing better at one time than at another; the hear-

ing is also better in the open air, than in a confined situation, in noise than in quiet, in a coach when in motion, than when it is still. It is also attended with a pulsation and a noise like the roaring of the seas. Extravasation of blood into the cavity of the tympanum, a venereal ulcer or those produced by scarlet fever, by cynanche maligna, followed by a cicatrix blocking up the tube, and the same effect caused by a stricture, will all produce this kind of deafness."

DUMBNESS.

"Dumbness may proceed from an injury to the nerves, which supply the glottis; or from some sudden emotion of mind, which destroys the power of the lingual nerves, terror, anger, have often produced it: also, violent catarrh. Dr. Good gives cases of speechlessness, which arose from the application of poisonous substances to the tongue, as verdigris, the poison of insects: deleterious exhalations, eating mushrooms, he also states, have produced it: masticatories, as pyrethrum, horseradish: sternutatories; as, asarum, turpith mineral, snuff, and blisters, applied near the tongue and glottis, have had a good effect. A sudden excitement of the mind has cured it. Emetics, a severe cough, a fit of terror, laughter, and a blow on the head have also removed it.* Sometimes, the voice fails so far as not to exceed a whisper, in consequence of violent catarrhs, strong emotions, &c.

The same treatment as above directed will then succeed: Dr. Cullen advises a tea of ʒi of horseradish and four oz. of boiling water well sweetened, to be taken in the dose of a tea-spoonful and swallowed slowly. Other stimulant gargles would be useful: as, that of capsicum,† blisters also should be applied near the seat of the disease."

* Good, vol. i. p. 324.

† Chapter on Sacrlatina.

PALSY OF THE SENSES OF SMELLING AND TASTING.

“ Sometimes the senses of smell and taste are wanting. I have treated a case of the former by emetics, as recommended above for amaurosis and with the happiest success. The sense of touch is also sometimes wanting. Sauvages relates the case of a young man, who suddenly lost it, without any evident cause ; with no other disease accompanying it : it was restored by a copious bleeding. It is sometimes a symptom of epilepsy, palsy, and apoplexy. Dr. Yelloly describes a case where there was numbness up to the ancles, so complete that hot water produced no effect upon it.”

CHAP. IV.

EPILEPSY.

Nosological Distinctions—Phænomena of the Epileptic Paroxysm—Varieties—Natural Progress of the Disease—Prognosis—Predisposition—Dependence of Epilepsy on Derangement of the natural Functions—Stomach and Bowels—Uterus—On some primary morbid Condition of the Encephalon—Functional—Structural—Practice during the Paroxysm—Principles of Treatment during the Interval—Agency of antispasmodic Medicines.

MANY circumstances conspire to give an interest to epilepsy ; the great frequency of the disease, the class of persons among whom it chiefly prevails, the alarming character of its symptoms, the obscurity in which its pathology is involved, and the difficulties which, from the earliest times, have been experienced in the relief of it. No other disease has ever procured for itself so large a share of popular attention. In remote times it was universally attributed to the immediate agency of evil spirits, and viewed with a kind of reverential awe, which ob-

tained for it the name of *morbus sacer*.* Among the Romans the forum broke up when an epilectic was seized with a paroxysm of his disease.

Although the characters of epilepsy are thus sufficiently distinct to have attracted in all ages the notice of the world, considerable difficulty has been found in contriving a definition of it which may include every form of the complaint; and not less, perhaps, in establishing the precise nosological distinction between it and the other varieties of convulsive disease. This may chiefly be traced to the want of a proper understanding of the true meaning of *disease*, in opposition to the *symptoms* by which it is characterized. Convulsion is a symptom, and not a disease; though many nosologists have so termed it. Epilepsy, on the other hand, is strictly a disease, consisting of a succession of paroxysms of *convulsion*. To complete the definition, nosologists have added the clause, *with insensibility*, and by this they distinguish epilepsy from hysteria.

[The remote cause of epilepsy is certainly a peculiar morbid mobility of the brain, and this condition is both hereditary and acquired. With this predisposition very slight exciting causes will occasion a complete paroxysm. It is impossible to frame a definition that will comprehend all the varieties of epilepsy. If we except the invention of a few medicines, and the more accurate observance of the state of the circulating system, we have learned very little since the publication of Dr. Cullen's sentiments on

* To the physician nothing certainly can be more instructive, than observing, that of the sick who were brought to our Saviour to be healed, the greater number were paralytics, and those who were possessed of "*unclean spirits*." While he learns from this how unchanged are the features of these diseases, he cannot, on the other hand, fail to appreciate, in all its force, the mighty miracle of their cure.

this subject. If we duly reflect on the state of medical science, when he wrote his chapter on epilepsy, we can but view it as one of the greatest exertions and most splendid intellectual exhibitions of the last century. P.]

The *species* of epilepsy which have been described by authors are mere technical expositions of its various exciting causes. Like many other affections, it is both idiopathic and symptomatic; but the phænomena of the epileptic paroxysm are, in both cases, the same. I shall first describe the usual appearances, and then notice the most important of those varieties which have been recorded.

The epileptic fit for the most part occurs suddenly. The patient falls to the ground; and the disease has hence received the appropriate name of the *falling sickness*. When the complaint is fully established, it is usual for the patient to experience certain warnings of the approach of a fit, which, though lasting only a few seconds, enable him to make some preparations for it. The most frequent of these warning symptoms are headache, giddiness, nausea, dimness of sight, or flashes of light passing before the eyes, ringing in the ears, disagreeable odours, fretfulness, and coldness of the extremities. Some persons are apprised of the approach of the fit by the appearance of particular spectres; but the most common of all epileptic warnings, is that singular sensation of tremor, or coldness, or numbness, which has been called the *aura epileptica*. It begins at the extremity of a limb and gradually ascends to the head, when the paroxysm of coma and convulsion ensues.

During the fit the convulsive agitations of the body are violent. The eyes are fixed and reverted, and the pupils permanently contracted; the teeth gnash against each other; the tongue is thrust forward, and often severely

bitten, and there is foaming at the mouth ; the breathing is irregular and laborious, and the pulse for the most part small and contracted. Complete insensibility prevails. The fit varies in duration from a few minutes to a quarter, or even half an hour. In some cases it has lasted even longer. On its cessation the patient remains for some time motionless, insensible, and apparently in a profound sleep. From this he recovers by degrees, but without any recollection of the circumstances of the fit. It leaves him weak and exhausted, and for the rest of the day he generally complains of a degree of stupor and sense of oppression in the head. In many cases this has amounted to actual *mania*, continuing for two or three days.

The periods of recurrence of the fits are too various to admit of being stated with any degree of accuracy. When the disease first develops itself, the intervals are long, perhaps two or three months. As it becomes more firmly rooted in the system, the fits recur with a corresponding frequency, until at length the patient hardly passes a day without one. It is important, however, to bear in mind, that genuine epilepsy never occurs oftener than this; and therefore, when a person has more than one fit in the day, we may reasonably conclude that the disease is of an *hysterical* nature.

Epileptic fits occur at all hours; but much more commonly during the night than in the day; sometimes on first going to sleep; but more usually, as far as my own observations extend, on waking in the morning. It is reasonable to conclude, that there is some peculiarity in the state of the brain during sleep, which is highly favourable to the development of the epileptic paroxysm.

The varieties in the phænomena of the epileptic fit are very interesting; and they have induced Dr. Prichard

(from whose valuable work I have derived great assistance in the present and succeeding chapters) to found upon them a three-fold division of the disease. The first, or common form, is that which I have just described; characterized by insensibility, and general convulsions, or *struggling* of the whole body. The second is the *tetanoid* epilepsy, distinguished by the loss of sense and consciousness, with tonic spasm or *rigidity* of the muscles. There is the same *suddenness* of seizure in this as in the former species; and though the attacks are very different in their aspect, they are manifestly allied in their nature. The third form of epilepsy is marked by fits of insensibility, with perfect *relaxation* of the muscular system. Dr. Prichard distinguishes this by the term *epileptic leipothymia*.* It bears a close resemblance to the apoplectic state; but its recurrence in paroxysms, and the whole tenor of the disease, prove it to be connected pathologically with epilepsy. To these may be added a fourth and still more singular variety, to which authors have given the name of *catalepsy*. The reality of such a state of disease has frequently been called in question, but without sufficient reason. One instance of it has fallen under my own observation. The affection consists of paroxysms of reverie, in which the patient remains unconscious of external impressions, and incapable of voluntary motion, though retaining the position in which he was first seized. The fit seldom lasts more than a few minutes, and leaves no traces of itself in the memory. The disease has in several instances passed into common epilepsy.†

* Treatise on the Diseases of the Nervous System, by Dr. Prichard. London, 1822. vol. i. p. 87.

† [Catalepsy has in one of our patients frequently continued six hours. It is sometimes the first indication of that condition of the brain upon which epilepsy depends. P.]

It has been noticed by authors, that some degree of consciousness is occasionally preserved in the genuine epileptic paroxysm; but such an occurrence is very rare, and seldom permanent, proving only a prelude to the total abolition of sense. In a few cases the recovery from the fit has been as sudden as the seizure; nor are the succeeding headache and stupor observed invariably.

Such are the more common modifications of the epileptic paroxysm. In whichever way the disease manifests itself, it goes on to produce other, and more serious injury to the constitution. In the first place, the mental faculties become gradually and permanently more and more impaired; the memory fails, and a state of mind closely verging to idiotism is at length brought on. In almost all epileptics a vacant expression of countenance is observable, which once seen cannot easily be forgotten. Yet here, too, we may incidentally mark the endless variety in the phænomena of disease. It has happened that a person, subject in youth to epilepsy, has risen in maturer years to the highest honours of a state, and been celebrated for political and literary talents.

Epilepsy, when once thoroughly rooted in the habit, will generally be found to bring on, sooner or later, some other form of encephalic disease,—hydrocephalus, mania, apoplexy, or palsy. The complication of epilepsy with mania is at once the most frequent and the most formidable. Of one of these, in most instances, the epileptic patient dies; but it is not to be overlooked, that epilepsy sometimes terminates, in the third place, fatally and suddenly, without inducing any secondary affection. This, though seldom witnessed among adults, is not uncommon in the epilepsy of children; and assuredly it cannot be a matter of surprise;—it can only lead us to reflect, how wonderful must be the structure of that delicate system,

which can resist, in ordinary cases, the repeated attacks of so dreadful a disease, and how little pathology can assist us in unravelling such a mystery.

On the morbid appearances observed in those who die of epilepsy, I have nothing to state of any importance. A turgid condition of vessels, both in the membranes and substance of the brain, has been noticed in some cases, with or without effusion of serum. Tumours, exostoses, and abscesses, have been discovered in others; but in none has dissection thrown any light on the peculiarities which distinguish the convulsive from the other varieties of encephalic disease.

In offering a few remarks on the predisposition to epilepsy, I have first to notice that it is obviously an *hereditary* disease in many instances. In others, the parents and relatives of the patient may not, it is true, suffer from actual epilepsy, but they will often be found affected by other maladies of the same class, such as palsy, connate idiotism, or mania. The intimate connexion subsisting among the different forms of nervous disease will enable us still to trace, in these circumstances, the principle of hereditary predisposition.

Epilepsy undoubtedly prevails, for the most part, in that habit or temperament of body called by some nervous; to which Dr. Cullen applied the term, *mobility of constitution*, and which entered so deeply into his speculations on the pathology of this disease. It is that state where impressions, both on the mind and body, produce more than their usually corresponding effects,—in which hope elates, and fear depresses, and wine irritates more than could reasonably be anticipated. To this circumstance alone are we warranted in attributing the well-established fact, that epilepsy is mainly the disease of early life. It was a maxim of Hippocrates, that epilepsy never

originates after the twentieth year; and though exceptions to this rule have doubtless occurred, it is yet a remark which amply proves the extent and accuracy of his researches.

Epilepsy is generally stated to occur in nearly the same degree of frequency in both sexes. My own observations would lead me to believe, that it is considerably more prevalent among females than males; and the fact, if correct, may be attributed partly to the greater *mobility* of habit in the female sex, and partly to that which is next to engage our attention,—the peculiar character of the *exciting causes* of the disease. These constitute, in fact, the most interesting points in the pathology of epilepsy, and they well merit a regular and detailed investigation.

I may begin by noticing the connexion of epilepsy with a deranged state of the natural functions, constituting the epilepsy *occasionalis* of Dr. Cullen; and then proceed to show how it depends, in other cases, upon some primary morbid condition of the encephalon. This latter variety of the disease Dr. Cullen has designated by the title of *epilepsia cerebialis*.

1. The symptomatic or *occasional* epilepsy is of two kinds;—the enteric, or that which is connected with disturbance of function in some portion of the alimentary canal; and the hysteric, or that which has its origin in disturbed functions of the uterus. Speaking generally, we may say, that the first is peculiar to children under the age of fourteen; and the second to women between the ages of fourteen and twenty.

The first source of that irritation in the alimentary tract which leads to epilepsy, is painful dentition. It is a fruitful cause of the encephalic diseases of children, and of none more commonly than of epileptic fits. The

second is acidity in the stomach, its distension by wind, or the mere detention in it of crude and undigested aliment. In infants of high natural irritability of frame, these disordered conditions of the stomach frequently lead to paroxysms of convulsion; and in many cases they recur, and otherwise exhibit all the characters of perfect epilepsy.

At a somewhat more advanced period of life, there is no kind of irritation which so commonly proves the source of epileptic fits, as the presence of *worms* in the intestinal canal; but almost any disorder of the bowels will, in certain habits and states of body, bring on a tendency to convulsion. The phænomena of cholera morbus will at once suggest themselves as an illustration of this pathological principle. The prognosis, in all the forms of enteric epilepsy, is naturally more favourable than in any other variety of the disease; because the source of irritation is both more obvious, and more under our control.

The hysteric epilepsy is at least an equally frequent, and unfortunately a much more formidable kind of disorder. It is a melancholy reflection, that it prevails extensively among the most delicate of the sex, at the most interesting period of their lives; often resisting the most active and judicious treatment, and degenerating into that permanent and almost incurable form of cerebral epilepsy which we are next to notice. Hysteric epilepsy commonly affects females about the commencement of the catamenial epoch, or shortly afterwards, when the flow is scanty and difficult. Occasionally it takes place at a later period of life, in accidental obstructions of the menses. It chiefly prevails among those of sanguine temperament, with full development and vigorous action of the circulating system, and a delicate irritable constitution. There is nothing peculiar in the character of the fits of

hysteric epilepsy, except that their recurrence frequently corresponds with the regular catamenial periods.

2. Epilepsy, as I have already hinted, is in some instances dependent upon a *primary* morbid condition of the encephalon, and totally *independent* of disturbed function of the abdominal viscera. Like the preceding variety, cerebral epilepsy is of two kinds; the one connected with *functional*, the other with *structural* disease of the brain and nervous system.

The obscurity in which the whole subject of the functions of the brain and nerves is involved, makes it impossible to speak with any precision on that difficult point in the pathology of epilepsy at which we are now arrived; but a variety of arguments might be adduced to show, that there exists primary functional disturbance of the brain, leading to the epileptic paroxysm. The hereditary predisposition to the disease; the absence of all appearances after death, excepting such as are common to other forms of chronic disease of the encephalon; and the recurrence of the fits at irregular periods, and particularly at night, are strong confirmations of this doctrine; but to these we may add the peculiar character of many of the immediate *exciting* causes of the fit. Of this kind are violent mental emotion, irritation, and the operation of certain poisonous matters both of the narcotic and morbid kind. Arsenic and the muriate of barytes have been strongly suspected of inducing epilepsy. The first effect of the poison of small-pox is frequently in children an epileptic paroxysm.

It is impossible to overlook the fact, that in a very large proportion of the cases of cerebral or idiopathic epilepsy, and in many of those which are manifestly connected with disturbed function of the bowels and uterus, there is well-marked præternatural fulness in some part of the

vascular system of the brain. This is a great and important feature in the pathology of epilepsy; and if I have reserved all mention of it to this time, it is because I feared that an earlier notice of it might divert the mind of the student from those other views of the complaint which, though obscure, and therefore less inviting, are yet equally necessary to a thorough understanding of it.

The grounds on which we form the opinion regarding the connexion of epilepsy with a state of congestion or over-distention of the cerebral blood-vessels, may be thus briefly enumerated. Epilepsy occurs in persons of full habit of body, and indolent mode of life: the fit is frequently preceded by head-ache, flushings of the face, and throbbing of the carotid and temporal arteries; it is brought on, in many cases, by great muscular exertion, as in parturition, by stooping, intoxication, heated rooms, and above all by violent fits of coughing, such as occur in severe hooping cough: the hysteric form of the disease is only one of those many consequences of obstructed menstruation, of which the prevailing character is irregular determination of blood: the appearances on dissection, when observed, are those of sanguine accumulation in the brain; and lastly, we may bring forward the well-attested good effects which have followed that depleting system of treatment which I am about to recommend.

While I thus express myself on the subject of epilepsy, as connected with turgescence of vessels, I am not insensible to the fact that paroxysms of *convulsion* are occasionally connected with a state of cerebral circulation, directly the reverse; as when we see them following large bleedings at the arm, double amputations, or excessive purging. Dr. Cullen, indeed, appears to have overstrained his favourite theory of epilepsy from *collapse*,

but it must not be altogether excluded from our reasonings.

The last point which requires consideration previous to entering on the subject of treatment, is the connexion of epilepsy with chronic disorganizations of some one of the structures within the cranium. Those which authors have most usually noticed as producing epilepsy, are spiculæ of bone, detached by some injury from the internal table of the skull; ossifications of the falx; tumours of various kinds, attached either to the bones, membranes, or parenchymatous substance of the brain; and lastly, foreign bodies lodged there. Numerous cases are to be found on record, of epilepsy from these and similar causes; but instead of pressing them on the notice of the student, I would rather wish him to understand how rare they are in comparison of those which are simply the results of *morbid action*, in many of which we may reasonably hope, by judicious measures and steady perseverance, to produce an alleviation, and even in a few, the permanent cure of the disease.

After what I observed in the outset of this chapter, it is unnecessary to state formally the difficulties which the physician has always to encounter in the management of this obstinate disorder. In many cases they are such as no skill can overcome. In others, however, a regular system of treatment founded on those pathological views which I have attempted to explain, is productive of decided benefit, while some, which to the pathologist would have appeared hopeless, have yielded to a practice wholly *empirical*. These considerations should encourage us in our attempts to cure the disease; and the following may be viewed as the most important of the principles on which a rational treatment of epilepsy is to be conducted.

During the fit no remedial measures of any importance

are either practicable or necessary.* Our efforts are to be reserved for the intervals of the fits, and our aim should be to prevent their recurrence. In effecting this, the following are to be the chief objects of attention :

* [This advice by no means accords with the best experience. When the paroxysm has actually come on, the head should be slightly raised, the body being in a recumbent posture ; every part of the dress, which presses upon the body, should be loosened ; and the jaws kept open by a piece of wood, as cork, &c. to prevent injury to the tongue ; opening the hands, when they are clenched, is also advised as a means of cutting short the fit. Bleeding has also been recommended ; its usefulness is, however, doubtful. With regard to sternutatories, volatiles, errhines ; they are hurtful. Embrocations and sinapisms are unnecessary. The patient generally recovers in a few minutes, and exhibits signs of languor and sleepiness : mild cordials are then useful.*

It is necessary to attend to the premonitory symptoms, as they sometimes lead to the adoption of proper means of prevention. Thus, when the fit is preceded by *aura epileptica*, if a ligature, or the tourniquet, be strongly pressed upon the limb above the place where the creeping sensation, or feeling of cold air, (which characterizes the *aura*,) commences, the fit will be effectually stopped. Sometimes the *aura* begins from a tumor seated in the course of a nerve, the removal of which cures the disease : † the division of the nerve, or applying a blister over it, does also. Opium, or laudanum, in the dose of 20 or 30 drops, given in a camphorated mixture, has completely prevented the fit. ‡ A case is related by Dr. De Haen, in which the patient was always attacked in his sleep : it was cured by giving a dose of opium before going to bed. § Dr. Cullen also has seen the disease prevented by giving it before going to bed. Dr. Darwin also relates two cases relieved in the same manner. Emetics have been also praised as useful preventives : || they are, however, too dangerous : they are recommended to be taken an hour before the fit. Keeping the jaws upon the stretch by inserting a piece of wood

* Cooke, p. 372.

† Aretæus, quoted by Thompson and Good, p. 370.

‡ Fraser on Epilepsy, p. 62. Van Swieten, 1084, quoted by Good, 373.

§ Cullen *Mat. Med.* vol. ii. art. Opium.

|| Van Swieten and *Med. & Physical Journal*.

1. To remove all sources of irritation.
2. To moderate the afflux of blood upon the brain.
3. To alter that morbid condition of the nervous system, on which convulsion depends.

To one or other of these principles may be traced the good effects of all the medicines and plans of treatment which have at different times proved efficacious in the cure of epilepsy. They are far from being incompatible with each other. On the contrary, it is often necessary to combine them all in the management of an individual case.

1. Having already described the different kinds of irritation in the body which occasion an epileptic fit, I have only now to state, that in the epilepsies of infants and children much may be done by free scarification of the gums; by the administration of an emetic; by occasional smart doses of purgative medicines; by the more liberal use of mild aperients and absorbents; and by strict attention to diet and regimen. Where the concomitant symptoms afford evidence of the presence of worms, anthelmintics are of course to be exhibited, more especially the oil of turpentine in a full dose. This medicine, independent of its vermifuge property, appears to exert, in moderate doses, a peculiar power of allaying that irritable state of the nervous system, with which the convulsive parox-

between them, has been useful in arresting a fit when on, and also in preventing it. Pressure on the stomach with the fist has the same effect.* I have seen it succeed completely and in a moment. Bloodletting is recommended by Tissot as one of the most effectual means of prevention, if the pulse be full and hard, and if there be any fulness in the head. Large bleedings practised for other diseases, have frequently not only prevented, but they have removed the fit. Pressure on the carotids has also postponed the attack.]

* Med. Repos. N. York. vol. ii.

ysm is so intimately connected. It is stated also, by Dr. Prichard, that it quickly and very materially changes the state of the intestinal secretions, producing regular and moderate evacuations. It is best administered according to the following formula.

R. Ol. tereb. ʒi.

Mellis ʒii.

Ag. Carui. ʒvi. m. capt. ter die.

When the irritation is seated in the uterine system, as manifested by the concurrent symptoms, scanty and laborious menstruation, and the peculiar periods at which the fits recur, our measures must in part be directed to restore the natural determination to the uterus. For this purpose, recourse may be had to the warm bath, or semicupium, stimulating enemata, 'as, those of turpentine,' relaxing medicines, as the antimonial diaphoretics, and the different kinds of *emmenagogues*. 'Of those the best are oil of turpentine, of sabin, tincture of melampodium.' Regular exercise, occasional purgatives, and in some instances an issue or seton, have also afforded very efficient aid in the treatment of the hysteric forms of the disease: 'pregnancy often removes this form.'

2. The second of those great principles by which the treatment of epilepsy is to be guided, is the obviating general plethora, and the taking off that peculiar determination of blood to the vessels of the head, which has been adduced as one of the most important features in the pathology of the disease.

Such a principle is equally applicable to the sympathetic as to the primary, or cerebral, varieties of epilepsy. Where the disease is still recent; where it occurs to young persons, and in robust habits; and more especially where,

in the intervals of the fits, the patient complains of headache, giddiness, stupor, or any other mark of permanent fulness in the blood-vessels of the brain, 'fulness and hardness of the pulse,' bleeding from the arm, 'temporal artery or jugular vein, according to the urgency of the case, are' not to be omitted. It may even be necessary to repeat it frequently, before the tendency to accumulation of blood about the head can be thoroughly subdued.

Keeping the same important object in view, the student will easily understand how to aid the effects of blood-letting by a mild and unirritating diet, early hours of rising and going to bed, regular exercise, abstinence from all fermented and spirituous liquors, 'cold bath, and' cold washing of the head and neck. Under particular circumstances, he will perceive the necessity of substituting for it cupping between the shoulders, leeches to the temples, blisters to the nape of the neck, and the steady use of purgative medicines.* It is hardly necessary to add, that rules can never be framed for the guidance of the practitioner in the mere *detail* of treatment: This more particularly applies to a disease which often lasts for years, and occurs under an infinite variety of aspects: His judgment is here alone to be trusted to.

[Besides the means already pointed out by the author the following may be tried. Tissot recommends in epi-

* [The purging should be free and active, and speedy, assisted by stimulating glysters every two hours. In children, it is more particularly necessary, from their disposition to repletion, to worms, and other irregularities of the bowels. Dr. Pritchard gives several cases of nervous disease, in which purgatives have been used with great success, though unattended with plethora. And Dr. Abercrombie relates a case, in which frequent purging, and a vegetable diet, completely effected a cure, though the patient had approached nearly to idiocy.]*

* Cooke, p. 383.

lepsy the use of medicines which keep the skin soft and pliable ; for this purpose he says, that warm bathing will be found to be valuable : When, however, there is too great a determination to the head, it should not be used.]

3. The last of those principles which regulate the physician in the administration of remedies for the cure of epilepsy, is the altering that peculiar condition of the brain and nervous system with which the state of convulsion is associated.*

* [What this state of the nervous system is, is difficult to be discovered. It is either hereditary, or it is acquired by causes acting after birth : It is, therefore, the duty of the physician to diminish as much as possible the action of those agents, which tend to increase this sensibility : by avoiding every thing which can unhinge the nervous system, as horrible sights, particularly of a person in an epileptic fit ; executions ; animals, such as insects, reptiles, to which the patient has an excessive aversion, or which excite horror.

By avoiding those habits of life which debilitate it, as excesses of eating ; drinking ; of watching ; of venery ; hard study ; great fatigue ; effeminate habits, as indolence, lying much in bed ; taking too little exercise. When it is hereditary, if the paroxysm has actually come on it will be difficult if not impossible to cure it ; but as the disease may be increased in force by certain causes, so the removal of these causes may diminish it, and render it more or less serious. The above cautions, therefore, on the subject of diet and modes of life must be attended to ; as from increasing age, insensible changes of constitution the disease may entirely disappear, when under the operation of aggravating causes, it may become fatal : The constitution and peculiarities of habit are therefore to be studied, whether the patient is plethoric or debilitated ; if the former the directions given above are to be complied with ; that is, v. s. purging, moderate sleep, and regular diet should be used ; the restoration of diseases that have been suddenly cured ; as the itch, or other eruptions on the skin ; hemorrhoids, are to be attended to : Inoculation for the first ; blisters, or other irritants, as volatile liniment, fomentations, potential or actual cautery, for the second ; and bleeding, for the third, by leeches to the anus, with aloetic purgatives, should be used.

Sometimes in infants, a fætid discharge takes place from the head, it should be kept up by acrid and stimulating injections, and if suppressed

Experience has shown, that medicines of the *narcotic* kind possess a considerable power over it. Many of them have accordingly been employed in epilepsy, and with occasional advantage; more particularly camphor, opium, hyoscyamus, and stramonium.*

it should be renewed :† small blisters behind the ears then often will be useful : or a strong volatile liniment so as to irritate the surface.

Sometimes the disease proceeds from the state of the stomach and bowels, as from immoderate indulgence in eating; then a vomit of ipecacuanha should be given, with active and brisk purgatives. Tissot relates a case, in which scammony, cream of tartar, and oxide of antimony, as also the neutral salts, senna, and jalap, were attended with good effects. He advises also as tonics the carbonated mineral waters, as those of Spa and Pyrmont, as also the use of steel. When there is plethora in this form, venesection followed by purgatives will have a good effect: If there be strong vascular action in the head, of course emetics must be dispensed with; and purgatives solely relied upon.‡ Where emetics are proper, calomel and ipecacuanha in doses of 10 grs. of each, repeated every hour till it purge and vomit freely, will be attended with the best effects. If the bowels are torpid more active cathartics become necessary, combined with stimulating injections.§ If united with diarrhœa, absorbents, hydrargyr. cum creta, aromatic powder, and infusions of rhubarb, and cloves are recommended :|| a well regulated diet also has an excellent effect. It should be composed of light and easily digested substances, as the farinacea, fowls, beef and mutton broiled, and taken sparingly.

* [In the opinion of Tissot assafoetida, castor, camphor, and rue, are valuable medicines in epilepsy : Dr. Cullen speaks favourably of the use of musk and the oleum animale, as effectual remedies.¶ With regard to opium, the facts related by De Haen, as above mentioned, are important; Dr. Huxby used it successfully combined with musk. Ætius, Avicenna, and Duchesne, a modern physician, considered it as a specific in this disease. Cullen proposes it as the best remedy that can be tried when the disease arises from irritability of the system. Externally applied in the form of plaster it has also been of the greatest benefit.**

Stramonium has also been used with the greatest success. Stork and

† Cooke, p.381. ‡ Ibid. p. 424. § Ibid. p. 425.

|| Ibid. ¶ Ibid. p. 404. ** Ibid. p. 410.

Further ; there are grounds for believing that the morbid irritability of the brain and nerves, on which spasm depends, is often connected with general constitutional *weakness*. Hence it is, that many of the most powerful of the *antispasmodic* medicines are in fact *tonic*. Of these I may specify, as having obtained considerable reputation in the treatment of epilepsy, bark, steel, valerian, and misletoe.

[With regard to the bark, the most decided proofs of its efficacy are recorded. Dr. Home relates the case of an epileptic, who had become so from a paroxysm of fear, and was nearly reduced to fatuity, whose fits became very slight, and recurred but seldom, by taking the bark. Tissot also relates cases of its success, where the disease was periodical. It should be employed some time before the paroxysm.*

With regard to the valerian, its property of stimulating the brain has been thought to render it peculiarly useful in this disease : it is to be administered with the same precautions as the bark. Plethora, if present, will contra-indicate its use.

The *artemisia vulgaris* has lately been used with success in Germany. It is given in the dose of ʒi of the

other northern physicians speak highly of it. Digitalis is spoken favourably of by some of the older writers : With Dr. Percival it did not succeed.

Hufeland has lately recommended the hyoscyamus and belladonna, sometimes combined with opium in the form of vapour or fumigation ; six grains of hyoscyamus, and ten of belladonna were moistened and put upon a spatula, and then heated by a spirit lamp until carbonization of the materials took place, and a vapour bath filled with the fumes : the patient breathed the atmosphere for about a quarter of an hour ; vertigo, tremours and spasms occurred, with good effects in mitigating the disease.]

* Cooke, p. 386. Home's Clinical Experiments, p. 207. Thompson, 346. Tissot, p. 336, quoted by Cooke.

leaves, in one dose daily.* The mistletoe was at one time recommended with as much reliance, as the bark in intermittent fever. It is given in the dose of \mathfrak{z} i to two drams, two or three times a day. Dr. Frazer, Fothergill and others have administered it with success. It is now, however, almost neglected. The leaves of the orange tree have also cured many cases. They are given both in powder and in infusion. Like the mistletoe, they have not at present many advocates. From the respectable names, however, who testify to the virtues of these remedies, there can be no doubt, but that they in some cases succeeded, and that epilepsy is a disease like intermittent fever, which is curable by very various and simple means.]

But it must be confessed, thirdly, that we are too often unable to form any idea of the precise nature of that morbid state of the nervous system present in convulsive diseases. This feature in the pathology of epilepsy is important with a view to practice. It shows that some of the medicines which have acquired a character for the cure of this disease, may have deserved it, although the mode of their operation be as little known to us, as the state of the brain on which the epileptic paroxysm depends. It is impossible, for instance, to overlook the numerous cases which are on record of the *permanent* cure of epilepsy by the *argentum nitratum*; ‘by Baillie, Dr. James, Johnson and others;’ and though we were to allow that a large proportion of these are inaccurately reported, still we must acknowledge the *alleviation* afforded by the remedy; and this appears inexplicable on any other principle than that to which I have now adverted. ‘It is taken in the dose of $\frac{1}{8}$ of a gr. three or four times a day,

* Med. Record. p. 420, No. 30.

and increased to 15 grs. It is best given in the form of pill; continued for some time, it colours the retémucosum of a dark hue, which however gradually disappears on leaving off the medicine.' Arsenic, and the oxyd of zinc,* have, in the hands of other practitioners, been found no less successful; and upon the whole, we are compelled to believe, that these and similar drugs (properly denominated *nervine*) may really be entitled to that credit which a too scrupulous pathology has often denied them.

[Drs. Rush, Gaubius, Cullen, and many others of the first authority in medicine, have borne testimony to the efficacy of this preparation of zinc. It may be given in the dose of two grains thrice a day. It has been increased to two scruples.

The cuprum ammoniatum has also succeeded, given in the dose of a quarter of a grain thrice a day, and gradually increased.

A salivation has succeeded in some cases. Tissot mentions that he has known it to have cured persons with

* [To these metallic medicines, we may also add, as above, the amoniuret of copper: and some judicious physicians have concluded, that a combination of the latter with zinc, is still more effectual. The acetate of lead has cured it. Dr. Rush has remarked, that he has cured it by this mode in children, but never in adults. It is not improbable that the cure in children is rather to be ascribed to a change in the brain, by the growth of the body imparting tone and energy to the brain. Mercury is not often effectual in the treatment of epilepsy; but has succeeded occasionally when the disease seemed to depend upon a congested or highly excited state of the brain. The disease was cured under our care, in a medical gentleman, (who had laboured under it ten years) by a salivation. It was in another, by a salivation from accident; and once in connexion with the state of the uterus already noticed.

Epilepsy has been cured by a supervening gout. Two gentlemen of our acquaintance were cured by gout, after forty-five, although they had laboured under epilepsy, the one fifteen and the other upwards of twenty years. P.]

the venereal who had epilepsy. Others praise it highly in this disease.

Tin has also been used with advantage. Dr. Fothergill prescribed it in the form of filings with conserve and syrup; and he thought it useful: at other times he gave it in union with the decoction of the misletoe, valerian, &c. Dr. Shearman gives it in the form of the elutriated oxide (ᾠ. bis die,) for four days, and afterwards a purgative; then resuming it.

Dr. Rush has given the acetate of lead in the dose of two grains, thrice a day, with complete success; Dr. Spence and Dr. Agnew have also used it, and with great benefit.

The tartrate of antimony, given in doses sufficient to keep up a constant nausea, has had a beneficial effect; Dr. Abercrombie has prescribed it with great success. Tissot has also used it with advantage: he recommends it particularly in combination with mercury, and in the cases of children.

The oil of turpentine has also been recommended: it is given more particularly in those forms connected with worms: it may be given in the dose of from 10 to 20 drops thrice a day, and increased. Dr. Latham cured several cases by it.

Dr. Johnson speaks highly of the tincture of cantharides, given internally, and blisters applied on the spine: the medicine must also be gradually increased.

Galvanism is also among the remedies for epilepsy: it abates and protracts the fit, but cannot be said to cure it.

When the disease depends upon ossification of the membranes of the brain, or upon abscesses in them, hydatids, bony and schirrous tumours, &c., it is incurable. But Tissot states that, when the disease has originated from an external injury to the brain, and the membranes are

affected, it has been completely relieved by the operation of trephining.*

Baron Percy in France has revived the actual cautery : he applies it to the cranium denuded of its hair : the hotter it is used, the less pain attends it. M. Goudret directs it to be heated to whiteness. It has succeeded in this disease beyond expectation. It must be applied so as to cauterize the surface of the bone. As this remedy is frightful, and generally objected to, M. Goudret substituted for it the following liniment :

Take of Tallow, 3vi. or 3ii.
Oil of Sweet Almonds, 3i. or 3ii.
Melt them and add of
Liquid Ammonia, 3i.

Rubbed slightly on the skin, it acts as a rubefacient ; for a $\frac{1}{4}$ of an hour, it blisters ; if still longer, it operates as an escharotic. The cases of the efficacy of issues are numerous : both applied to the head and the arm and other parts of the body. The cautery, the moxa, burning by the concentrated rays of the sun, and issues, are particularly applicable to cases, where the disease is owing to an inflammation of the membranes of the brain produced by external injuries. The moxa is made by making a cone of cotton, and setting fire to it, blowing it with a small bellows, and gradually burning it down to the skin ; it, in some instances, burns, when repeatedly applied, into the substance of the skin, but, it is not equal to the actual cautery in this respect. The horror of having it applied the second time, is little short of the actual cautery itself.† It therefore will not be generally intro-

* Cooke, p. 415.

† Cooke on Epilepsy.

duced. The liniment of Goudret answers perfectly. Mr. Valentine also recommends the actual cautery in this disease. By De Haen it is preceded by an incision of the scalp down to the bone, which Valentine thinks unnecessary. The use of the cautery in epilepsy, is supported by the salutary effects of accidental wounds and burns on the scalp; also by the fact, that in Padua and Milan it was the custom to cauterize the occiput of new born children to prevent epilepsy and comatose affections, and Hippocrates has observed that ulcers about the head and ears have cured epilepsy. There, therefore, can be no doubt of the efficacy of this plan. If there be any organic lesion of the brain, as a tumour, if the aura epileptica exist, and sets out from a fixed point, of course the cautery can be of no use.*

The tartar emetic ointment has succeeded by establishing eruptions on the skin beyond any other remedy: John Creighton, jr. restored patients reduced almost to idiocy, to a state, which enabled them to attend to different employments: the fits were also diminished.]

Irregular affections of the Senses, sometimes the result of some of the preceding Neurosis.

STRABISMUS, OR SQUINTING.

[Squinting is produced by debility of one eye, the other being the sole organ of perfect vision: the weak eye, as it is comparatively useless, is therefore not directed with precision towards the object. Sometimes it results from the habit of using one eye more than the other; of course the one not used is not directed towards the

* Med. Record, vol. iii. p. 534.

object, and squinting is produced. Some organic defect also may impair either the organ or its motions, and produce the disease.

In the first case, the object is to restore motion to the weak eye: for this purpose, fixing a dark object near to the outer angle of the eye, so as to draw the squinting eye outwards, has been used, and covering the sound eye, rendering it necessary to use it. The use of goggles, as the sound eye only is then used, do little good. In the two first species, the first plans will generally succeed; in the last, that from organic defect, of course little can be done.]

ACUTE HEARING.

[The sense of hearing is sometimes so acute as to render even whispering painful. It is sometimes a symptom of gout, often of earache, phrenzy, fever, &c. The appropriate remedies and plans for the gout, fever, &c., are necessary to be used when it proceeds from either of these causes. Laudanum dropped into the ear, and blisters behind it, are proper when it arises from a pain or sensibility of a nervous character. The disease is little known, as it so rarely occurs; it must be left, therefore, to the judgment of the practitioner.

Sometimes the hearing is almost obliterated, excepting amidst loud noises: thus, a case is related in which the person could not hear excepting when a drum was beaten; another except when travelling in a carriage. It is stated, that the constant use of the sound as a medicinal agent has succeeded in curing this kind of deafness. Dr. Birch cured a person who only heard during the ringing of bells, by ringing them always in his hearing.* Stimulating articles of diet, as mustard, horseradish, Cayenne pepper,

* Good, iii. 167.

bark, valerian, and ammonia, are also recommended for the cure of this variety ; but upon the authority of what experience we know not.* It is a disease upon which little certain is known, and the practice not by any means ascertained.]

DOUBLE HEARING.

[Sauvage relates the case of a musician, who on every sound of his flute heard two notes instead of one, and at the same moment ; also another, who heard two voices of different tones, when spoken to.† Salivation, blisters to the back of the neck, purges, leeches, and bleeding, may be tried. It is a disease about which we know very little.

Sometimes sharp continuous and hissing, or loud intermitting sounds, are heard, which annoy the patient very much. Fumigations of the ear with the vapour of hot vinous liquors, impregnated with the volatile oils, when it proceeds from nervous debility, and sudorifics at the same time ; blisters to the internal ear, the ointment of cantharides being introduced into it by a gauze bag, and salivation, may be tried. I have seen almost every remedy used for this disease without effect.

The senses of taste and smell are also occasionally excessively acute. When this state exists in a morbid degree, the causes which excite it must be avoided. The remedies, pathology, and mode of treatment of this malady, are all unknown.]

* Good, vol. iii. p. 167.

† Ibid. p. 168.

CHAP. V.

MANIA.

Controversy regarding the Nature of Maniacal Aberration—Manner in which Mania originates—Progress of the Disease—Varieties in the Maniacal Character—Prognosis—Morbid Appearances—Predisposition to Mania—Exciting Causes, physical and mental—Pathology of Mania—Management of the Insane, moral and medical.

IT is impossible for me to enter on the discussion of this subject without some expression of the reluctance with which I engage in it. Conscious, as I am, that it ill becomes a physician to cherish in the exercise of his duties the refined and delicate feelings of his moral nature, it would yet be affectation in him to overlook the very peculiar character of this branch of his profession,—to reason concerning mental, with the same indifference as on bodily derangements; or, in investigating the nature of mania, to forget the melancholy spectacle of the maniac. But there are other considerations which make me hesitate in entering upon the present inquiry,—the extreme obscurity of the subject, arising from our ignorance

of the mode in which the operations of mind and body are connected;—the remarkable differences observable in the opinions of medical authors concerning mania;—and the limited extent of my own experience in the disease. On the other hand, it is no small consolation to reflect, that the pathology of mania has little in it which bears upon treatment; and if the student should rise from the perusal of this chapter imperfectly informed of the theory of the disease, he will yet not be the less qualified to appreciate its practical suggestions.

A great deal of metaphysical learning has been displayed in determining the precise nature of maniacal aberration,—in other words, in developing the *theory of diseased ideas*. The object has been to frame from this, some *definition* of mania which may apply to all cases of the disease; and afford to the medical practitioner a certain criterion, by which to determine when a man is actually deranged, and to distinguish between insanity, and mere singularity of manner, or waywardness of temper.

The difficulty of effecting this is greater than might at first sight be apprehended. One class of nosologists define mania to consist in some error of the judging or reasoning faculty. Mr. Locke characterizes madness as a disordered state of the association of ideas. Dr. Cullen, who supports this theory, says, that false judgment of the relations of things constitute mania. This view of the subject, however, is in opposition to a principle generally admitted, that madmen reason correctly from erroneous premises; and moreover it draws no sufficient line of distinction between the insane, and those who are merely foolish, or capricious.

Dissatisfied with this definition, Dr. Cullen subsequently stated it as his opinion, that the diseased judg-

ments of the insane were such as produce *disproportionate emotions*. It is questionable how far this addition has increased our just notions of the disease. The emotions of a lunatic are, indeed, often vehement and forcibly expressed; but they are probably in due proportion to the impressions from which they take their rise.

Another class of pathologists, therefore, in attempting to establish the nature of madness, exclude all reference to the state of the reasoning faculty, as well as all notion of a primary derangement of the emotions or passions, and consider mania as consisting in *diseased perceptions*; the mistaking one man for another, a chair for a throne, a walking-stick for a sceptre. That such false perceptions do occur among maniacs there can be no dispute; but it may reasonably be doubted whether they are the *essential* circumstances of madness. Many insane persons have the power of perception in a very complete degree; and false or *mistaken* perceptions are among the ordinary occurrences of common life.

Dr. Prichard and others take a somewhat different view of the subject,—maintaining that the habit which characterizes the lunatic, is that of confounding the results of imagination and memory; and mistaking the ideas of reverie for the impressions of attentive and active reflection. This is doubtless a correct and scientific explanation of a very large proportion of maniacal aberrations; but whether it includes them all, is a point on which pathologists continue to differ.

From the diversity of views which have thus been taken of the precise condition of the mind which constitutes insanity, we may, I imagine, deduce some very important conclusions: 1st, That all the faculties of the mind are capable of being affected in the maniacal state, though not always equally, or at one and the same time: 2dly,

That it is hardly possible to express in words the nice distinctions that mark the boundaries of reason and insanity, or to specify the delicate gradations by which weakness of intellect, depression of spirits, violence of temper, and eccentricity of manner, degenerate into actual disease: 3dly, That in determining the question of sanity or lunacy, the common sense of mankind must ultimately be relied on; and that its decision can receive little or no assistance from metaphysical speculations.

Passing from these abstruse points, I proceed to give a brief sketch of the origin and progress of the disease. The manner in which it makes its approach is considerably diversified. In some instances the attack is sudden and violent, and perfectly unexpected; but in others, and probably in a much larger proportion of cases, the advances of the complaint are *gradual*. A certain oddity of manner has been manifest in the individual, perhaps for years; he has exhibited very high or unusually low spirits, been fretful and irascible on slight occasions, distrustful of his friends, easily intoxicated, and strongly affected by every emotion or passion of the mind. The increase of these has prepared the friends of the patient for the complete development of the maniacal symptoms.

In the onset of the disease there is generally considerable disorder of the whole system; much febrile excitement, loss of appetite, 'tightness and soreness at the pit of the stomach; heat in the same parts with a feeling of terror;' a costive state of the bowels, excessive restlessness. There are present also, very decided evidences of unusual determination of blood to the head;—flushing of the face, redness of the conjunctiva, contracted pupils, 'giddiness, impaired vision, absence, staring eye,' and headache. The ideas of the patient are often more incoherent at the commencement of madness than at a more

advanced period. As the general excitement of the body lessens, they acquire a greater degree of consistency, occurring in trains more evidently connected, though still retaining the true maniacal character. The patient will now answer questions, but his replies are vague and unmeaning.

In this state the maniac remains for a considerable time, the disease very seldom proving immediately fatal. He relapses, perhaps, occasionally into the prior degree of incoherence, or exhibits the cheering prospect of a *lucid interval*. By degrees his ideas become more settled, until either the morbid impressions altogether disappear, or they remain so indelibly fixed, that he sinks into the condition of a confirmed and incurable lunatic. "Maniacs have been said to bear cold better than the sane; this, however, is found to be an error. They are equally susceptible of hunger, and require sleep, except in those cases where the disease is intense, and when it is attended with great excitement;—it then resembles many other maladies in this particular; the patient neither requires nor demands much food."

In the further progress of the disease it becomes frequently complicated with epilepsy or palsy. "The sense of hearing is more frequently impaired than any other; that of sight rarely."* After the lapse of some years, the patient dies, and for the most part in a comatose state† 'of atrophy, consumption, or hydrothorax.'

There is a proportion of the insane who can only be restored to a *certain degree* of sanity. While kept quiet and unexposed to any source of irritation, they enjoy a

* See Haslam.

† This outline of the history of mania is abstracted from Dr. Prichard's excellent work on the "Diseases of the Nervous System," p. 113.

considerable share of rationality and tranquillity. Retaining, however, a morbid susceptibility of all the causes which produce the disease, they are incapable of again mixing with the world without the risk of the total abolition of reason.

From the earliest periods attention was directed, both by the profession and by mankind generally, to the varieties in the maniacal character; and much importance has always been attached to them. Maniacal aberration exhibits itself under the three great forms of the furious, the gloomy, and the idiotic; which latter may be either adventitious or congenite. These distinctions correspond with the mania, melancholia, amentia, and fatuitas of nosologists. Although a *popular* subdivision of the complaint, it is certainly superior to that which the old pathological writers chiefly dwelt upon. By them the *extent* of maniacal aberration was assumed as the distinctive character of the species; and the term *melancholia* was made to bear a reference, not to the concomitant dejection and despondency, but to the *limitation* of the diseased condition of mind to a few objects or trains of ideas. This, however, appears to be a matter of trifling importance, whether in relation to pathology, prognosis, or practice, and it is therefore in a great measure disregarded by modern authors.

A detail of the most striking peculiarities in each of these three principal forms of insanity would afford ample scope for the display of eloquence, and might prove interesting to the man of feeling, and perhaps useful to the cultivator of intellectual philosophy. To the student of physic, however, it would be of little value, and this consideration deters me from attempting even a faint sketch of it. To him the most interesting subject which the investigation of mania presents is that of *prognosis*, which

within the last few years has been prosecuted with uncommon zeal, and has led to results which neither the physician nor the philanthropist can contemplate without much gratification.

It has been satisfactorily proved, in the first place, that mania does admit of cure; and, provided the disease be brought under treatment at an early period, in a very large proportion of cases. It has been shown, secondly, that a mild and humane system of management is that under which the greatest number of cures has been effected; and that the ultimate good of the lunatic can never be brought forward to cloke the carelessness or ill temper of the attendants. But it is sufficient to look at the reports of any of the great receptacles for lunatics in this country,* to be sensible that mania, though curable, is not so in the same degree as many other chronic diseases.

In estimating the probability of *permanent* recovery

* Report, laid before a Committee of the House of Commons, May 15, 1815, of the Admissions and Discharges into St. Luke's Hospital, during the years 1811, 12, and 13.

Year.	Admitted.			Discharged cured.		Discharged uncured.		Having fits, and being too weak in health to take medicines for their lunacy.	Died.
	Males.	Females.	Total.	Males.	Females.	Males.	Females.		
1811	137	157	294	49	75	49	58	48	33
1812	136	158	294	49	72	53	56	29	29
1813	126	156	282	39	74	54	59	33	24

Average of deaths among 100 incurable lunatics, from 3 to 5 per year.

Applications for admission on the incurable list, about 700.

many minute circumstances must be taken into consideration; but we are never to lose sight of the strong tendency which this disease shows to *relapse*, and to rivet itself in the constitution by frequent recurrence. The particular prognosis, or those minute shades of distinction which give us more or less hopes in individual cases, may be comprised under the following heads.—Insane persons recover in proportion to their youth. The chance of recovery diminishes with the length of time that the disorder has continued. Patients who are in a furious state recover in a larger proportion than those who are depressed or fatuous. Mania connected with ‘idiocy,’ palsy or epilepsy is quite hopeless. Mania from physical causes is more likely to be permanently cured than when it arises from mental or moral causes. ‘When it arises from pride, or religion, it is seldom cured, and is often fatal. When it proceeds from other diseases, as repressed eruptions, and when its attacks are slight and do not return often, it is more curable. To all these, there are exceptions; as sometimes even the idiotic maniac becomes furiously mad, and the paroxysm is followed by a recovery.’ Puerperal mania is that species of the disease from which *perfect* recovery has taken place in the largest proportion of cases.

“In women, from whatever cause the disease may have proceeded, if the menses are worse or deficient in quantity at the usual period, it is a bad sign.”

Insanity is more or less susceptible of cure according as it arises from causes purely *accidental*, or is connected with a greater or less strength of family predisposition. ‘Insanity arising from scurvy is seldom cured.’

[Mania is distinguished from phrenitis by the absence of pain; from delirium by the insensibility to external objects, and the entire occupation of the person with the

disturbed current of his thoughts when in that state; whereas in mania, the mind is generally active with regard to objects around him, or fixed in habitual melancholy or stupor, &c. Delirium generally attends fever; mania is most commonly without it: Mania from intemperance and opium, is distinguished by the spectres and strange fantastic shapes seen by the person who is affected with it.]

Much discussion has arisen respecting the morbid appearances observable in those who die maniacal. It has been contended by some, that the brain exhibits certain distinctive characters in all, or almost all cases of mania; and a peculiar *hardness* of the substance of the brain has usually been regarded as the *common* phænomenon. By others, this is not only denied, but it is actually maintained, on the authority of numerous and accurate dissections, that no alteration whatever from the healthy structure is discernible in the heads of the insane. The truth will be found to lie between these extremes. Morbid appearances are indeed observed, but they are in no wise different from such as present themselves in many other forms of encephalic disease, or even in common fevers,—serous effusion, for instance, ossification, thickening of the membranes, turgescence of vessels, ‘soft white substances along the longitudinal sinus.’ The notion of the maniacal state being intimately connected with preternatural hardness of the brain, is now abandoned.

In entering on the consideration of the *causes* of mania, my attention must first be directed to the important influence of hereditary predisposition. It is the most strongly marked and melancholy proof which we have of the reality of such a predisposing cause of disease. Struck by its extent and force, some pathologists have even questioned the possibility of mania existing without it, and

have alleged, that no combination of circumstances, however powerful, can, *per se*, bring on the maniacal state.* The phænomena of febrile delirium, however, are strongly in favour of the presumption, that mania is sometimes *acquired*. The instances which appear most unequivocally to prove such a principle in pathology occur in the case of puerperal insanity; and doubtless to this circumstance is mainly to be attributed the greater proportion of recoveries which distinguish this class of maniacal patients. The predisposition is of course the stronger, as it occurs on the side of one, or of both parents.

The only other circumstance which can be considered to give a predisposition to insanity, is the advanced period of life. As a disease of youth, mania is hardly known. Seldom is it observed before the twentieth year, and it increases in frequency as life advances.† The greater number of maniacal patients have their first attack between the ages of thirty and forty. The female sex has been considered by some as more especially prone to mania, but the disproportion is not very great, and if puerperal insanity is kept out of view, hardly discernible. They are most subject to it at the period of the disappearance of the menses.

The circumstances that more immediately induce the maniacal paroxysm are often obscure, the most accurate

* [It often appears in the second generation, passing over the first, like gout and other hereditary diseases; or it is seen in head-aches, epilepsies, chorea, palsy and other nervous affections, appearing in some members of the family in true mania.]

† [The author here is not exactly correct, the greatest number of maniacs occur between thirty and forty; next between forty and fifty; next between twenty and thirty; next from sixty to seventy; and finally from fifteen to twenty.]‡

‡ Pinel on the Bicetre.

inquiries exposing nothing that could have contributed to the event; but at other times it is observed to follow certain physical conditions of the body, and affections of the mind, which it may be useful to investigate.

Injuries of the head have sometimes brought on mania. A constant habit of intoxication is that which chiefly operates as the cause of insanity among the lower classes in this country. Such a result cannot surprise us when we reflect what intoxication is, how nearly it resembles mania, and how seriously the frequent indulgence of it must injure the vessels of the brain. ‘Masturbation and extreme abstinence from coition also produce it; cold water frequently applied to the head, and living in a house newly built likewise have caused it.’

I have already alluded to the numerous instances which occur of insanity succeeding parturition. Women of *sanguine temperament* are chiefly observed to suffer in this manner, but it is not *peculiar* to such habits; and, altogether, there is considerable difficulty in accounting satisfactorily for the phænomenon. Maniacal affections are connected also in other modes with the uterine functions. Irregularity of menstruation, which in many young women induces symptoms of hysteria, becomes in others the prelude to a maniacal attack.

Authors are in the habit of illustrating this portion of the pathology of mania by reference to the cases which are recorded of its origin from *metastasis*, ‘as, from repelled eruptions, the itch, herpes, &c. healing up of ulcers, from a coryza; rheumatism, the gout, abscesses suddenly repelled.’ I am inclined to think, however, that more importance has been attached to this, than a strict investigation of the subject warrants. I pass on, therefore, to notice the emotions of mind, the uncontrolled indulgence of which has brought on insanity; and among

these the most common are superstitious dread, religious fanaticism, intense grief, especially where arising from domestic calamity, closely allied to which is the despondency of a hopeless passion. Poets are fond of representing these as the sources of mental derangement, and there is much less of fiction here than in other exercises of their genius. Lastly, mania has often been traced (particularly in commercial countries) to the constant anxiety of mind connected with an extensive trade and hazardous speculations. With a view to practice, it is very important to bear in mind, that in maniacal cases most obviously arising from these and similar violent emotions and passions, there will often be found considerable disorder of the natural functions. Whether this is to be regarded in the light of cause or effect may be a matter of dispute; but it is generally acknowledged, that such cases admit of relief by remedies acting through the medium of the stomach.

[All the causes of mania are such as oppress either the mind or derange the nervous system. In proportion as a country becomes thickly peopled, so must the difficulties and the troubles of life increase, and of course, in the same proportion must the diseases of the mind be multiplied. In England, accordingly, from the year 1775, to 1809, the diseases of the mind have increased in ratio, of 129 to 100.]*

Of the actual state of the brain in mania we have no certain knowledge. It is reasonable to presume that in some cases there is *congestion*, or perhaps a peculiar kind or modification of *inflammation* going on there. Many of the occasional causes of the disease, some of its preceding and concomitant symptoms, its connexion with

* Med. Trans. vol. iv. p. 131.

other diseases, the mode by which it proves fatal, and occasionally the appearances found on dissection, correspond perfectly with that notion. We are led to the same opinion by considering the recorded good effects in mania of such measures as are commonly resorted to in encephalic inflammation, compared with the inefficacy of all others.

There are a variety of facts, however, connected with the history of mania quite inexplicable on such a principle: as, for instance, an hereditary predisposition to the disease, and its recurrence at irregular periods from slight and inadequate causes. From these it is to be inferred that mania is often produced by a morbid condition of the brain, unappreciable by the anatomist, and altogether different from those visible, tangible, organic affections which are the consequences of disturbed circulation within the cranium. Judging from the well-known fact that mania seldom appears in early life, often not until a good old age; that it becomes more obstinate as the patient grows older; and that a modification of mental derangement (imbecility,) often comes on in extreme old age, we must infer that the changes which the structure of the brain undergoes in the progress of life tend to increase that peculiar condition of it with which maniacal aberration is connected.

The treatment of mania is usually discussed under the two heads of moral and medical, and both have been much improved of late years; the former being more thoroughly investigated, and raised in importance; the other by being simplified and regulated by more accurate principles. I begin with the consideration of the *moral management* of the insane; it being now unreservedly admitted, that on it depends mainly the successful issue of the case. Under this head are included, in public

institutions, the classification of patients; in all situations, the conduct and tone of the medical practitioner and of the attendants towards the patient; the employment of restraint and coercive measures; the question of estrangement from friends, and of solitary confinement; the establishment of a system of regularity in all the actions of the lunatic; the occupation of his mind, religious instruction, amusements; manual employments, exercise, the regulation of diet and regimen; and the change of scene and association.

A few cursory observations on the principal topics here suggested will be sufficient to point out the spirit and scope of that system of moral management which is now generally adopted in this country.

[Those who are of the same temper and disposition, should be put together; thus it would be improper to confine in the same room the religious and the profane; the refractory, boisterous, and quarrelsome, with the timid and retiring; noisy patients should be separated to remote apartments, where they will incommode no one: the convalescents should also be put by themselves, where they may amuse themselves with billiards, nine pins, and other sports; they should eat with the officers of the house, who should conceal from them any circumstance which would recall the cause of their being brought there; after waiting a few months, if there should be discovered no sign of madness, the patient may be permitted to return to his friends.

The advantages of isolating patients, afflicted with this disease, are now generally acknowledged: their rebellious and refractory disposition is more easily quelled by strangers; and their affections and intellect are so far weakened that they are not injured by separation from their relatives, or by confinement with the insane, whom

they regard generally as people who have singular notions and manners, without suspecting that they are deranged. They should be confined to a hospital or asylum, where they are removed from their friends, and not to their own homes, where they may have full or partial control over servants and others, as the directions of the physician will in that case be neglected. The dominion of the physician should be absolute. All promises should be religiously kept with maniacs ; and when the patient is unruly, if a man, he submits most easily to a female keeper ; if a woman, to a male.

In subjecting the maniac to moral treatment, it is necessary not to oppose directly his notions upon any subject. Thus, for instance, if he believes himself to be a man in great authority, the idea should not be flatly contradicted ; though it is necessary to remove in a covert manner this deranged notion, and prevent him from acting upon, or indulging it, by exciting new ideas, attaching him to new pursuits, and giving strength and energy to those faculties of the mind which are dormant and weak, and thus throwing his thoughts into another channel.]

Firmness on the part of the attendants sufficient to ensure obedience, is found not incompatible with those conciliatory manners which so commonly win the good will of the patient, and rouse him from the sullen humours in which he is prone to indulge. The employment of severe restraint is hardly ever resorted to in the best regulated modern mad-houses. It creates a degree of irritation of mind which impedes advancement, and is at variance with that soothing and encouraging plan so necessary to ultimate success. ‘If he has misbehaved, punishment without threats should follow ; and in presence of the other patients, as it gives them a proper sense of doing wrong ; and it should be applied by a strong or

a sufficient number of persons, to render attempts at resistance useless. Every mild means should be pursued to gain the confidence of the patient, and punishment should not be resorted to except in violent cases. The punishment should not be accompanied with opprobrious language; striking, or beating, should not be permitted; confinement of the hands, or to the room, the shower or plunging bath will generally be found sufficient.* In many cases nothing contributes so essentially to the cure, as withdrawing the mind as much as possible from former scenes and settled associations; and to effect this, the total exclusion of friends, a complete change of scene and habits, and 'constant occupation,' are often found to be measures of indispensable necessity. Amusements of various kinds that engage attention and promote exercise in the open air, without rousing the passions or producing fatigue, 'as sailing, swimming, fencing, riding, walking, &c.,' should in every way be encouraged.

[It was the opinion of the ancients, that the patient should be placed in a cool and moderately dark place. For melancholy patients, a change of climate, airy and pleasant scenes are more proper; to ordinary maniacs, those which best suit their fancy. Returning home, when it proceeds from homesickness, of course is the remedy. The dwelling, food, and the clothes of the maniac, should be warm, dry, and comfortable, to prevent the scurvy, to which they are prone, and to avoid the danger of frost. They should also be well ventilated.]

The diet should be simple 'and laxative,' and at the same time nourishing, such as may support the system, without *heating* it. Regular hours of meals, 'rising early,' exercise, and sleep, should be strictly enforced.

* Thomas.

‘Labour has always had a good effect. : in Spain it has succeeded in curing many.’

[Sometimes the patient attempts to commit suicide. I have known plunging in the cold bath, suddenly administered, to cure a person who determined to drown himself. The text of Scripture, ‘no murderer hath eternal life,’ gravely pronounced to a religious maniac, has had the same effect. In treating mania, the patient is to be considered as capable of acting from motives, and appreciating the force of a reason in some degree, though this degree may be small. The ingenuity of the practitioner must discover the nature of his character, and act upon it accordingly. This applies extensively to the amusements, occupations, &c. of this class of people ; those which are most agreeable must always be chosen. The tranquilizer of Dr. Rush, a chair, to which the patient is confined in a sitting posture, the strait waistcoat, or its substitute, a strong leathern belt girded round the body with a strap passing round each arm, may be used to confine them. Their chains should be made of leather, to prevent noise. They may be confined by one leg to the floor, or be strapped to a chair. The greatest possible attention must be paid to cleanliness ; their straw should be often changed ; their rooms should be airy, and in a healthy situation. At Guy’s Hospital, the patients are put on bedsteads bottomed with lead, so that, when they wet them, the urine runs off to one corner.]*

The medical treatment of insanity was at one time conducted in the most indiscriminate manner, having no reference to the peculiar habits of the patient, the immediate exciting causes of the disease, or the character of the concomitant symptoms. Such an opprobrium is no

* Thomas.

longer chargeable against those who have the professional care of lunatics. It is now well understood, that though medicines are of comparatively little service in the relief of mania, yet when necessary, their administration is to be suited to the complexion of each case, and regulated by the ordinary principles of pathology. The following suggestions may assist the student in determining the plan of medical treatment best adapted to the particular state and stage of mania, in which his assistance may be required.

1. The medical treatment of insanity can alone be entered upon, with a reasonable prospect of advantage, at an early period of the disease.

2. It cannot legitimately be employed with any other object than that of relieving the constitutional disturbances with which maniacal aberration is occasionally complicated. When these have ceased, our hopes of success must rest in time, the efforts of nature, and moral management.

3. When insanity first develops itself in a young and plethoric person, it is not uncommonly accompanied with the ordinary marks of phrenitic inflammation; and here blood-letting is often resorted to with very beneficial effects. I am well aware, however, that among those whose attention is exclusively directed to maniacal disorders, a notion prevails, that blood-letting rivets the disease, and that the great object of the practitioner, in all its stages, should be to support the patient's strength. Acknowledging the general correctness of this rule, there are still considerations of great weight to which at times it must necessarily yield. The nature of the exciting cause, for instance, cannot be overlooked in determining the plan of treatment. Where mania is traceable to excessive intoxication, blood-letting, even to a considerable

extent, is often required, and for the most part is borne well. The temperament and general habits of the patient are equally to be consulted. "In France, Pinel and others think unfavourably of venesection, and rarely employ it. Dr. Rush believed mania to be always attended with fever, and almost always had recourse to blood-letting. I have seen much of his practice, and believe that bleeding is on a footing with all other remedies in this disease,—often uncertain in its effects; and when it is proper, should be used with an eye to avoid debility. In melancholia, or where there is great weakness of system, it is improper. Early in the disease, when the pulse is active, the veins distended and full, with universal lassitude and sense of weight, the subject young, the system plethoric, the habits indolent, and the living luxurious, then I have seen it of the greatest advantage, in many cases; in others, however, it did little good. In those who have been debilitated by age, by medicine, by a long continuance of the disease, by poor diet, so far from doing good, it will certainly do harm.

Local bleeding is always useful when the attack is introduced by fulness of the face, and great excitement; it may be taken by leeches or cups, from the neck and temples. In order to be useful, it must at the same time be united with repose, shaving the head, silence, darkness, a low and watery diet, and the use of sudorifics to assist the effect.

Bleeding is always proper where the disease is owing to suppressed menstruation, or about its recession in women, or where there is any other discharge attended with plethora, as bleeding from the nose, piles, &c. In those cases the application of leeches to the labia, to the piles, the hemorrhoids, or to the temples, if it came from the nose, sometimes has a good effect.

Where on the contrary, there is great debility, produced by misery, excessive evacuations, as bleeding, purging, by hunger, confinement in cells below ground, which are damp, the diet should be nourishing, with tonics, as iron, bark, &c.

When the debility is produced by masturbation, to which women are particularly disposed, it is necessary that some person should be always with them, their diet should be low, and their system should be prevented from becoming plethoric: If the patient will not take food, he may be made to open his mouth by pressing on the parotids, which causes so much pain that he cannot resist it, a tube may then be introduced into the stomach, through which his food may be passed: Glysters of broth, &c. may be given at the same time.*

4. One of the earliest means of relief in mania which history has recorded, is the free administration of purgative medicines. There are few who can be ignorant of the presumed virtues of hellebore in this disease; and though the medicine has sunk in common estimation, the principle upon which it was resorted to is still acknowledged as correct. A disordered state of the alimentary canal is a frequent concomitant of maniacal aberration. So strongly is this marked in certain cases, that pathologists have described a peculiar variety of the disease under the title of *enteric mania*. It is characterized by obstinate constipation, the evacuations when procured exhibiting a most unhealthy aspect, a viscid secretion into the mouth, a failing or depraved appetite, coldness of the skin, scanty and high-coloured urine, and a rapid irritable pulse with restless nights. In this state of disease the

* Georget.

use of purgative medicines is to be long and patiently persisted in.*

[The use of emetics was formerly a favourite practice in mania: Like other remedies, they are useful in some cases, but what cases they are is difficult to be known. The general opinion at present is against the employment of these remedies, in any shape. If the excitement is considerable, they do good in small doses.

Glysters made of salt and water, or with the addition of turpentine, or other substances, are to be used in cases where constipation is the prominent defect: The ascending douche of the French, which consists of a tube introduced into the extremity of the rectum, and a stream of water passed through it from a hogshhead raised to a height of ten feet, has also been extensively useful in removing costiveness. Tartar emetic, in small doses, to produce purging, frequently repeated, will be found to be valuable; some of the neutral salts, as the sulphate of magnesia, or of soda, will also answer well: and after they have operated a dose of laudanum will be useful in quieting the system. Sometimes maniacs are very subject to worms; then it will be necessary to give anthelmintics; and when the patient is so obstinate that he will not take the cathartic medicine, it will be necessary to administer injections of tartar emetic, $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{iv}$. of water, to open the bowels: as recommended by Drs. Chapman and Rousseau, of this city, and Dr. Valentine, in France, or rub upon the thighs and belly ointments made with purgative medicines; such as colocynth. By the French they are said to succeed often, when no other plan will answer.

* Consult Dr. Edward Percival's "Report on the morbid Conditions of the abdominal Viscera in some Varieties of Maniacal Disease, with the Methods of Treatment."—Dublin Hospital Reports, vol. i.

When the disease is periodical, the bark or arsenic answers well; their efficacy has been tested both in France and England, where they have been administered with the greatest success. I have seen, however, an incurable palsy of the feet produced by taking arsenic for a long time: it should not be continued at one time for more than three weeks.]

5. The high degree of nervous irritation present in mania has induced physicians, in all ages, to expect relief from narcotic medicines, and most of them have been fully and fairly tried. Those which have obtained the highest repute are opium, hyoscyamus, and camphor,* but upon the whole, little reliance can be placed upon them. 'Opium, in particular, has been given in enormous doses, but often with little effect. Where the patient is restless, exercise and proper diet only will secure repose. Opium in furious mania is hurtful.'

6. It would be improper to pass over without notice the warm bath, which in the hands of some modern practitioners has been productive of very marked good effects, and which the concurrent testimony of several intelligent

* The digitalis has been much celebrated, and no doubt succeeds in some instances; like all other medicines of the same class it must be given when the accession of the fit is characterized by great frequency of the pulse, extreme mobility, and palpitation of the heart. In France the digitalis has been particularly praised. Many English physicians have also found it useful: Its noxious effects, viz. vertigo, cloudiness before the eyes, nausea, vomiting, the slowness and irregularity of the pulse, weakness of the stomach, with fainting, extreme languor, with a fœtid and viscid perspiration, must be remedied by stimulants, such as ether, volatile alkali, brandy, and blisters to the stomach and wrists.†

In cases where it is desirable to procure sleep, the hyoscyamus or the extract of the juice of the common poppy is better than opium, as they do not excite the blood-vessels so much.‡

† Fodere.

‡ Ibid.

men has stamped as a remedy of *general* and undoubted efficacy in the treatment of insanity.* It has been found particularly serviceable in cases of uterine or puerperal mania.

The cold bath, or bath of surprise, is spoken of in terms of at least equal commendation by others; but its administration requires to be regulated with a degree of nicety which few can pretend to, who have not enjoyed extensive opportunities of observation.

[Cold water is applied by throwing it over the body by a pot: by spunging the surface with a sponge dipped in it; by sprinkling as from a water pot, in a shower or stream let fall from a height; the first called the shower bath; the second, a *douche*. The exact application of the cold bath, in mania, requires care, as it is sometimes attended with the best, at others, with the most disastrous effects. The temperature should not be below the natural standard, and the constitution should be strong. It will be likely to be useful in chronic cases, if by its sudden application a reaction can be excited, and the mind restored.

The cold bath acts in two ways: first upon the nerves by giving a shock which rouses the mind: 2d, by cooling the surface, which it not only reduces in temperature, but weakens also the power of generating heat, as the heat remains reduced many hours after coming out of the bath: 3d, by driving the blood from the surface towards the centre, it gives an impulse to all the organs, and rouses them from their torpid state. If the body is already in a torpid state, the heat below the natural standard, and the stamina feeble, it is evident that the shock communicated

* See "Evidence taken before a Committee of the House of Commons on Mad-houses," 1815.

to it, must necessarily remain, and depress the system below its natural standard, keep it there and be permanently hurtful.

Notwithstanding the reports against the usefulness of the cold bath in mania, there are some equally strong in its favour; like many other remedies, it sometimes does great good as well as harm: Dr. Currie relates the case of a man who had been excessively intemperate, and who had become maniacal in consequence, who was effectually cured by throwing him headlong into a cold bath. Van Swieten also relates several cases of the same kind.* Fodere states that he has seen mania cured by the cold bath alone; in the asylum of M. Guiaut at Marseilles, the only additional treatment was small doses of tartar emetic, given in whey; camphor internally, and leeches, with frictions of camphor upon the spine: out of 130 one half were cured by this method. It is particularly in cases where there is a great heat of system, that the cold bath is especially applicable. With M. Guiaut it succeeded well where the patient was furiously mad, and vigorous. He even cured one aged 72 years. At first they were rendered more furious, but afterwards it was so agreeable to them, that they requested its repetition. With the sad, taciturn, the feeble, the stupid, and when the mania has been of long duration, it does not succeed.†

Besides the use of cold in this mode, it has also been applied by ice put into a cap and laid upon the head. Good tells us that in 1783 it was used in Germany for this purpose, and in 1749 at Hallé, poultices made of ice were applied to the head, whilst the body was plunged into warm water. This last practice has been lately revived in England, by Dr. Delahoyde, and with success: the cold in his plan is applied by pouring it on

* Fodere, p. 366.

† Ibid p. 368-9.

the head. At Salpetriere, warm baths form the basis of the treatment. When the patients are much agitated, the bath is prescribed every day, and it is continued as long as they are able to bear it, from half an hour to two or more; it is administered also to maniacs of every description: observing to apply it but a short time, and rarely to those whose chest is contracted and who are plethoric, and predisposed to apoplexy, as it produces a cough, spitting of blood in the former, and a tendency to the head in the latter. The baths have the effect of softening the skin, and calming the agitated nervous system. With the assistance of laxatives, and diluents, such as, barley water, orgeat, lemonade, fruit, gooseberries, cherries, apples, and, at their meals, water barely reddened with wine. In this manner they treat mania of an excited character at the hospital Salpetriere, and when it presents no particular indications.*

When the patient is feeble, languid, and without energy, the skin below the natural temperature and the faculties torpid, then it becomes especially proper to use the warm bath: it may be applied by directing a stream of hot water upon the surface of the head; thus securing the good effect of percussion and of heat. Fodere mentions that he has cured by this plan, loss of memory combined with debility and stupefaction; and to increase its success, he states, that he has used it in combination with aromatic herbs, such as thyme, sage, and rosemary. The water used may be impregnated with salt, in imitation of the various mineral waters: the quantity of whose ingredients are, however, so small that little good can be expected from them. We are told by the same author that the waters of Bagneres, Bonnes, and Bareges were successful in curing mania, used in this way: they are

* Georget de la Folie, p. 315-17.

all warm sulphureous waters, and if a trial is thought proper any of the hot sulphureous springs of our country will answer equally well : or if it is thought proper to make them artificially, recipes for this purpose, will be found under the head of cutaneous diseases, in this volume, which will answer.

The diet and medicine should correspond. When the warm bath is administered in those cases, the patient should take camphor, musk, or other stimulating medicines, or those advised under the head of narcotics above. Frictions with stimulating embrocations, composed of the essential oils, and ammonia. Cologne water, camphorated spirits, will also be useful to assist in exciting the system.* The bark and other tonics may at the same time be administered internally. The same author states that in the mania, which sometimes is the consequence of the excessive use of mercury in curing the venereal, and which happens to those who work in this mineral, warm baths have been found to be of great use. They are also assisted by a milk diet, bark combined with opium and antiscorbutic medicines ; the baths are best administered in the form of douches. The character of this mania is great taciturnity, and moroseness. Fodere confirms their efficacy from his own experience.† When by applying the cold bath, we wish to excite a fever, the diet should be nourishing and stimulating, such as meat, or beef, sausages, wine, garlic, spices and condiments of all kinds.

The bath has also been applied as a means of producing suspended animation by plunging the patients into it till life was nearly extinct and then reviving them. It is advised to be prolonged till asphyxia has taken place, and then the patient is to be recovered.

* Fodere, p. 370.

† Ibid. p. 371.

Suspended animation produced a complete cure in a case of a maniac, who attempted to commit suicide, and who was revived after hanging 20 minutes; the shock cured him perfectly.* The author just quoted recommends the patient to be kept under water, for the space of from one to two minutes, and then to be taken out, and recovered. This experiment is too dangerous, particularly as the shock sometimes produces epilepsy, apoplexy, palsy, and as submersion for two minutes has been fatal, life being entirely destroyed by it.

With regard to the effect of falling from a height recommended by the same author, it has often been successful; not only in mania, but in other obstinate cases.† With proper machinery it might be tried without endangering life.

Cold water given internally has also been found useful in mania. It is highly praised by Hufeland. Others have also given their testimonies in favour of it; but it is a remedy, of which we have had too little experience, to be at all certain of its effects. The strength and cases of the system, it is certain, may be much altered by the diet and drinks upon which we live. That water does alter the power of the system is certain, from the experience of those who train themselves for gymnastic exercises, and that, therefore, the subtle qualities of the system might be thus operated on by this simple agent, there can be no doubt. How far, however, it may produce a cure of mania is difficult to say. The great name mentioned above, is a high recommendation. It may be given in large draughts, and very cold, frequently throughout the day.

* Fodere, p. 389.

† See Med. Record. 1824. Report on Yellow Fever in New Orleans. Extract from p. 386.

Blisters, setons, issues, the actual cautery, common caustics have also been recommended ; they do good in some cases, but what these are requires some discrimination. The actual cautery, it appears, from the best experience of modern times, should only be applied to cases, where the patient is stupid, imbecile, and without excitement ; it will not suit those where there is great fever, or excitement of the brain ; applied either to the head or the back of the neck, it has then an excellent effect.

Blisters should not be used, till the action had begun to decline. They may be valuable in all cases where eruptions have been repelled, when applied to the part which it occupied. Setons and issues are best applied to the back of the neck, and are most useful in chronic cases.

Sometimes strong excitement by rousing the system from a state of melancholy to furious passion recovers it. Thus, intoxication, a sudden paroxysm of joy has produced this effect. Electricity and galvanism are both thought to operate favourably in the same way by rousing the powers of the torpid mind. The stimulus should in both these cases be very gradually applied.*

Mr. Cox speaks of swinging as favourable in mania ; it produces tranquillity and sleep ; beyond this, I cannot think that it has any other effects. In the experience of Mr. Cox applied by whirling round the body, in his gyrator, a circular machine, it performed cures in many instances. I have seen it tried without the least effect. There is a peculiar species of madness described by Sydenham, as supravening to agues ; it is cured by confinement to the room, and moderate diet. Puerperal mania resembles in its treatment the ordinary form.

We are told by Dr. Eberle, in his learned work on the

* Thomas, p. 501.

Materia Medica, that Dr. Oliver, of Salem, Hufeland, Baillie, Thuasen, and Wurzer, have used in mania the prussic acid with the most decided success: It has also been thought particularly well adapted to that form which proceeds from suppressed secretions. We are also told by the same eminent writer that it has been used with success in hypochondriasis.*

I cured a case of mania by it in the Pennsylvania Hospital: it appeared to operate by inducing dyspepsia, a disease to which the patient had been formerly subject.

Dr. Eberle tells us in his *Materia Medica*, that camphor was used with the greatest success in mania, by the late Dr. Barton; in one case he completely effected a cure: Dr. Gooch also found it, in mania and melancholia, in the dose of 10 grs. with the same quantity of hyoscyamus, an invaluable remedy to procure sleep. We are also told by the same writer, that given in the quantity of a dram, camphor has been used, in the hospital of St. Louis, in nymphomania, with the effect of completely allaying the desires of the patient.†

Dr. Eberle states that he has succeeded remarkably well with emetics in hypochondriasis. He considers it absolutely necessary to rouse the stomach in this form, and that the best effects are produced by the full operation of these medicines. Alternated with the blue pill and free purgatives, they have the best effects in this malady. The same distinguished author has derived the greatest benefit from them in puerperal mania.

Emetics have been used in that troublesome and often unmanageable form of mania, from excessive and long continued intemperance, by Dr. Klapp, of this city. They are given in large doses, and must produce full vomiting before they are effectual. Dr. Eberle tells us in his *Materia Medica* that he has received from Dr. Albers, of

* Eberle's *Mat. Med.* vol. ii. p. 95.

† *Ibid.* p. 42.

Bremen, the most unequivocal testimony of the efficacy of this plan. In proportion as the stamina are exhausted by a long continuance of the use of the stimulus, so do emetics lose their effects; opium then must be resorted to; its dose should be increased, and that of the emetic diminished in proportion to the debility of the system.

Freedom from care, and tranquillity of mind, will assist in preventing the attack of mania. Marriage into a family which has been affected with the disease is also dangerous. The mind should be gently exercised, but not too much strained by over study in youth; the diet should be temperate, and the passions well regulated; the education should be rather physical than intellectual, and the mind should be repressed, rather than excited. Regulating their too precocious strength at the same time, by slender and moderate diet.*

With regard to the convalescence, the patient should live quietly, free from all bustle and noise, avoid all excitement of the passions; guard against the suppression of the menses by exposure to cold; of eruptions, of ulcers, and the removal of setons. All the remote and exciting causes, should be avoided, and the patient should beware of excesses.

Recent inquiries† have satisfactorily shown that mania, so far from being, as was once apprehended, an increasing malady in this country, is in reality less frequent than it was;‡ and it is not unreasonable to suppose, that this may have in some measure been the result of those improvements in the medical treatment and moral discipline of the insane, which it is for the honour of the present age to have introduced.

* Dict. des Sciences, Med. vol. art. Folie.

† See Burrows' "Inquiry relative to Insanity." London, 1820. Page 106.

‡ This statement is contradicted by the reports of Mr. Powel.

CHAP. VI.

CHOREA.

Literary Notices concerning Chorea—Symptoms and Progress of the Disease—Prognosis—Predisposition—Pathology—Method of Cure—Comparative Efficacy of the purgative and tonic Systems of Treatment—Influence of Arsenic.

CHOREA, commonly known by the name of St. Vitus's dance, received but little notice from the early systematic and practical writers in medicine. This neglect, however, it shared with many other diseases of early life, croup, hooping cough, hydrocephalus, marasmus. It is highly creditable to the pathologists of recent times, that they have extended an equal share of their attention to every form of human suffering, and laboured assiduously in that field which their predecessors had unjustly deserted. From such censure the illustrious Sydenham is, for the honour of this country, exempt. His description of chorea is accurate and spirited, and has served as a model for every succeeding author. No improvement upon it appears to have been made for a long series of years, nor did it again become an object of specific investigation until 1805, when Dr. Hamilton of Edinburgh turned his attention to the complaint, in the course of his inquiries into the utility and administration of purgative

medicines. The account of chorea to be found in the useful work of that author* is by far the most precise and complete which has ever appeared, and leaves me no other task than that of brief analysis.

Chorea usually makes its first attack between the eighth and the fourteenth year of life. Dr. Hamilton mentions having seen the complaint originate between the ages of sixteen and eighteen; and I once saw it, in a very perfect form, in a young woman nineteen years of age. Its approaches are commonly slow. An awkward dragging of the leg, twitches of the muscles of the face, and unsteadiness of the fingers, precede the more general convulsive motions which characterize the confirmed state of the disease.

The contortions and gesticulations of the patient render him a singular but painful object of observation. All the muscles of voluntary motion are at different times and in different instances affected. Those of the face, neck, and extremities, more particularly suffer. The hands and arms are in constant motion. He can grasp no objects, even with the strongest exertions of his will; he walks unsteadily; but with all this, there is no symptom of pain or uneasiness. The expression of countenance, though grotesque, is, in the early stage of the disease, that of good humour and contentment.

The convulsive agitations vary in violence, and are subject to occasional exacerbations.† During sleep (un-

* Observations on the Utility and Administration of purgative Medicines in several Diseases. By James Hamilton, M.D. Sixth Edition. Edinburgh, 1818. Chap. x. page 134. Chorea.

† [This disease has been generally viewed by the nosologists as a simple convulsion; but it is difficult to divest ourselves of the idea of a partial paralysis, in any confirmed case of *ch. s. Viti*: and when from neglect the disease has continued to adult age, the loss of power in the muscles is still more manifest. P.]

less in very bad cases) they cease altogether. As the complaint advances articulation becomes impeded, and is very often completely suspended. Deglutition also is occasionally performed with difficulty. The eye loses its lustre and intelligence. The face is thin and pale, and expressive of a languor and vacancy, which in severe and protracted cases approaches nearly to fatuity. The mind, indeed, partakes in some instances of the bodily disorder, and the mental faculties retrograde to those of infancy.

With these evidences of disturbance of the cerebral functions, are usually united very unequivocal marks of a deranged condition of the stomach and bowels. A variable and often ravenous appetite, a swelling and hardness, or sometimes flabbiness of the abdomen, with constipation, accompany in a large proportion of cases the onset of the disease. In its advanced periods we may observe impaired digestion, a very offensive state of the alvine evacuations, and flaccidity and wasting of the muscles throughout the body.

Chorea has always been found a tedious disease. The most experienced practitioners admit, that under the best regulated system of treatment it often continues for several months; and many instances are recorded of its terminating only after a lapse of some years. Occasionally we meet with adults affected with convulsive twitchings of the face and arm, originating in early life, and of a nature closely allied to, if not identical with, chorea. They often exist, however, with acuteness of intellect, and a perfect state of all the functions, and are viewed rather as peculiarities of habit than as actual disease.

Chorea is not attended with danger. In the few cases which have been recorded of fatal termination, its character had merged in that of epilepsy, and it had probably become complicated with organic læsion of some structure

within the cranium.* It is a very important, but well-ascertained feature of the disease, that it admits of a natural cure. I have seen a variety of cases of genuine chorea which were never subjected to any kind of medical

* [It not only terminates in epilepsy, but epilepsy terminates in chorea. In one of our patients, a young lady of fifteen, the symptoms of epilepsy by which she had been afflicted four years, were gradually and happily commuted for those of chorea, of which she recovered in two months, under the use of arsenic and the cold bath. Five years have elapsed, but no vestige of either has been observed.

The deranged state of the stomach and bowels, that has given rise to the practice of severe and repeated purging in this disease, has, we think, been improperly interpreted by those who have generally adopted the gastric pathology. While they contend that chorea originates in the stomach and intestines, and radiates thence to the brain and nerves, we imagine it will be found upon a more minute observance of facts, that their position must be reversed. Perhaps it will be found, that many of the agents that act primarily on the stomach, act only as exciting causes upon a predisposition of the brain and nerves inviting to chorea. That such a predisposition in the brain is sometimes laid by causes acting on the stomach, we admit; but we are to look for a primarily disturbed state of the brain and nerves, before we can account for the phenomena of many cases of chorea. The utility of cathartics as general radical means of cure, has been too generally credited; and if the pathology we adopt be correct, the increased gastric and intestinal secretion accumulated in the first passages, are the necessary result of the weak and torpid condition of the brain and nerves communicated to those viscera, giving rise to slow congestions, and their inevitable consequence, vitiated secretion. It is not pretended that chorea is usually attended by much fever, and never by inflammation. There is no previous congestion in the brain; but an impaired energy extending to all its dependencies. It comports with this theory to remark, that chorea can almost in all cases be cured, in its first stage, without much purgation, if the use of tonics be properly conducted; and that the accumulation of vitiated secretions is the consequence of the want of early attention and judicious management. Our objections to the indiscriminate employment of purgatives are not predicated on the apprehension of a dangerous debility, in this or other nervous affections; but because such medicines are usually unnecessary. Of *twenty-four* cases of chorea which have been treated by us, there were only *three* in which the use

treatment, which gradually yielded in the course of three or four months. The same principle is more generally known as applicable to hooping-cough; and it is interesting in this manner to trace the pathological relations of two diseases which have little apparent connexion with each other.

Experience has fully proved that much may be done by medicines to shorten the duration of this disorder; and the slightest reflection will convince us how requisite it is that they should be had recourse to early. While the disease lasts, an effectual check is put to the improvement of the youthful mind; and though the danger to life from it be but small, yet its continuance for any length of time is attended with the risk of permanent fatuity. The fact of its capability of a natural cure should only be so far impressed upon the physician, as to make him distrustful of some of those medicines which have been brought forward too confidently for the certain removal of the disease.

It not unfrequently happens that chorea, after being to all appearance cured, returns, and perhaps with considerable violence. Still, surrounded as we are in this part of the work with diseases that almost preclude hope, it is consolatory to find one which, in almost all instances, can be effectually and permanently checked.

The causes of chorea are but little known, and that little is comprised under the head of *predisposition*. It attacks boys and girls indiscriminately, and those chiefly who are of a weak constitution, or whose natural good

of strong cathartics rendered the least service. In two of those, the hepatic secretion was evidently vitiated, we think in consequence of the exposure of the patients to marsh effluvia. It is very remarkable, that cathartics will not often cure the disease, without the subsequent use of tonics. R.]

health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment.

The pathology of the disease closely assimilates itself to that of the other forms of convulsive affection. It appears to depend mainly upon the peculiar *irritability* or *mobility* of frame which distinguishes the infantile periods of life, and the constitution of the adult female; and which is opposed to the *vigour* of manhood, and the *torpor* of advanced life. That this is a principle of considerable importance in the pathology of chorea, there can, I presume, be no question. I have seen it strikingly illustrated in those cases which originate in young women soon after the appearance of the catamenia, and which bear so strong an affinity to hysterical affections. Chorea, indeed, may without much refinement be characterized as the hysteria of an earlier age. Such an irritable state of body is very frequently associated with real *debility*, and therefore it is that we so commonly find chorea occurring in weakened and relaxed habits, and have so much reason to attribute it, as already stated, to scanty and improper diet. This debility or loss of tone in the general system constituted the leading principle in the pathology of chorea, according to the system of Cullen, and indeed all the professed systems of physic during the last century; and it naturally led to the exclusive employment of stimulant and tonic medicines in its cure.

In practice, however, it is highly necessary for the student to be aware, that the *irritable habit* of body is compatible with a state of muscular strength, and even of plethora; and that the convulsive motions which are among its more obvious marks, originate in some source of *local* irritation. Dr. Hamilton was the first who formally applied this acknowledged principle to illustrate the pathology and direct the treatment of chorea. It was the chief design of his inquiry into the phænomena

of this disease to show, that the debility and spasmodic motions, previously so much insisted on, were not its *leading* characters; but that they depended on an ulterior derangement of the stomach and bowels. Such a view of the nature of chorea has been gaining ground in this country since the publication of Dr. Hamilton's work; and though it would be contrary to all pathological analogy to expect, and to all observation to maintain, that it includes the whole theory of the disease, still it may fairly be assumed as a doctrine of very extensive application.

The general principles of treatment in chorea naturally flow from the considerations which I have now pressed upon the notice of the student. Medicines have been administered with three distinct objects, *viz.*—1. To remove the constipated state of the bowels, and regulate their functions: 2. To strengthen the general system: 3. To break in upon that disposition to habitual recurrence which spasmodic actions, once excited, are so apt to leave. On each of these indications of cure, and the best means of fulfilling them, I shall, in conclusion, offer a few practical suggestions.

1. The extensive experience of Dr. Hamilton in the administration of purgative medicines in chorea, qualifies him to become a most useful guide in this branch of medical practice. He informs us, that the quantity of *fæculent* matter collected in the bowels is, in many instances, enormous, and bears no proportion to the fulness and prominence of the abdomen. He imagines it to have a reference to the *duration* of the disease, and its natural consequence, the want of sensibility in the intestines. In the early stage of the complaint, while the bowels still retain their tone, and before the accumulation of *fæces* is great, gentle purgatives, repeated as occasion may require, will effect a cure, or rather prevent the full development

of the symptoms. In the confirmed stage, cathartics of a more powerful kind are demanded ; and to ensure success, they must be persevered in steadily, and with a confidence which can be derived only from a conviction of the true nature and causes of the disease.

Here, as in all other cases of extreme debility, the recovery is slow and gradual. A regular appetite for food, a more intelligent eye, and a returning playful temper, are the preludes to that cessation of inordinate movements in the muscles which we are not to expect as the *sudden* reward of our exertions. The bowels must even continue an object of attention for a considerable time after a salutary change in their state has taken place. The occasional stimulus of a purgative will be necessary to support their regular action, and to provide a security against renewed accumulation, and consequent relapse.

In this disease, and indeed wherever a disturbed state of the natural functions constitutes a *primary* feature in pathology, it is indispensable that the practitioner should personally inspect the alvine evacuations. The attendants in a sick room are ignorant of the different principles upon which purgatives are administered, and incapable of forming an opinion as to the kind or degree of effect which is contemplated in each particular case. By personal inspection alone can the physician adequately judge of the effect of one dose, or speak with confidence of the necessity and extent of others. From the experience of Dr. Hamilton it would appear, that it is comparatively of little importance what purgative is administered, provided we assure ourselves that the desired effect has been fully procured. ‘Sydenham combined purging with v. s. on alternate days; with an opiate at night, and succeeded in curing it.’

Chorea is occasionally complicated with worms in the intestines. This is not to be considered as a *common*,

far less as a necessary concomitant of the disease. It suggests the propriety of exhibiting, in suspected cases, the oil of turpentine, in the dose of four or six drams; and the effect may be kept up by the terebinthinate emulsion.

R. Ol. Tereb. ʒi.

Mell. ʒii.

Aq. Carui. ʒvi.

M. cap. + d.

2. It is not contended, however, by Dr. Hamilton, nor would it be consistent with common experience to maintain, that benefit may not also be derived from tonic medicines and a strengthening regimen. They restore energy to the torpid bowels, aid the operation of purgative medicines, and confirm recovery. Much may be done by light and nourishing food, and regular exercise in the open air. The cold bath has proved a most powerful auxiliary in many cases, and in languid states of the system has often acted like a charm. "Leeches to the temples, neck and along the spine, repeated at the interval of a few days; shaving the head, using the tepid shower bath, gradually made cold, with a proper attention to the bowels, succeeded with Mr. Crampton.* He also used the nitrate of silver with success, giving $\frac{1}{4}$ of a gr. + d."

Of the tonic *medicines* which have acquired a character in the cure of chorea, I may particularly specify the preparations of steel. I have witnessed the best and most indisputable effects from a scruple of the ferrum ammoniatum, given three times a day. The following cordial draught, containing bark and aromatic confection, is well adapted for the ends in view.

* Dublin Hosp. Reports, vol. iv.

R. Decoct. Cinchon. ℥i.
 Confect. Aromat. ℥i.
 Tinct. Cinchon. compos. ℥i.
 M. cap. quaq. quart. por.

A moderate allowance of wine has also proved, in numerous cases, highly beneficial.*

3. Like many other kinds of convulsive disease, asthma for instance, or whooping cough, chorea is often kept up in the system by a principle of *habit*;† and in obsti-

* [The oxide of zinc, in the dose of two grs. four times a day has been praised so extravagantly by Gaubius, and other great men of his day, that it must be valuable, notwithstanding its frequent failure lately. The ammoniated copper has also been used with success. It is given in the dose of $\frac{1}{3}$ of a grain, and increased to two. When given in union with the oxide of zinc, the stomach, it is remarkable, will bear larger doses of both medicines than before.

The bark, of all other remedies, was the most powerful in the hands of Dr. Cullen; with others it has not succeeded so well.

Dr. W. P. C. Barton, Professor of Materia Medica in the Jefferson College, of Philadelphia, succeeded perfectly in curing a case of chorea of the most obstinate character, by the *strychnos nux vomica*.

Dr. Doucet, of New-York, praises highly the use of large draughts of port wine. The patient recovered immediately, though many other plans had been tried in vain. The warm bath in other cases has succeeded.

Carbonate of iron, besides the other preparations of that metal, have cured that disease.

A blister to the sacrum, a seton in the neck, and dry cupping over the back, are also said to have been useful. At the same time that these means are used, it is necessary that the patient should go into the open air, indulge in some exercise in which the motions are regulated, as dancing, fencing, or boxing; use temperate, moderate, and digestible food; keep the mind tranquil, and watch his habit narrowly, whether it be plethoric or otherwise, and take his measures accordingly.]

† [The power of habit, in perpetuating the disease, is illustrated in the examples of imitative epilepsy, and counterfeit cases of hysteria. This principle was remarkably exemplified in one of our patients. There was a man of 27 years of age, a foreigner, who laboured under Ch. S.

nate cases, which resist the plans of treatment now proposed, it becomes an object of importance to interrupt that chain of actions in the body which have been so long associated with convulsive movements of the limbs. With this intention physicians have frequently prescribed the several kinds of antispasmodic medicines; more particularly musk, the volatile alkali, opium, 'belladonna, foxglove, assafœtida,' ether, and camphor. 'They are however to be considered as palliations generally, though sometimes they cure, when other remedies have failed. With regard to this, as all other nervous diseases, the remedy precisely suited to each case can only be determined by actual trial. In one constitution one remedy will succeed, when all others fail, without the reason being discoverable. Electricity has been recommended as valuable by De Haen, and there can be no doubt with good effect.' But of all the drugs exhibited with this view, arsenic appears to have been the most generally and decidedly successful. Several cases illustrating this fact may be found recorded in the *Medico-Chirurgical Transactions*.* The medium dose for a child of ten years of

Viti, and frequently exhibited himself as a buffoon in the market-places. By his strange gesticulations, and ludicrous grimaces, he attracted crowds of children, from whom he received small sums of money. A little girl between six and seven years of age, became very fond of his company, and at length begun to mimic certain of his motions, which became more and more familiar, till she had learned nearly all his eccentricities. She became so attached to this itinerant, that her mother found it necessary to send her to the country, to break that contagious sympathy, which appeared to be a compound of pity, and that instinctive proneness to imitation, which pervades all the higher orders of animated nature.

The author has omitted the fact, that Ch. S. Viti is sometimes the consequence of long continued fevers, especially of the typhoid or typhus varieties. Those cases are sometimes incurable, and occasionally end in mania; but more frequently in fatuity. P.]

* Vols. iv. x. and xi.

age is five drops of the arsenical solution three times a day.*

Differences of opinion may exist as to the mode in which arsenic operates. If I might indulge a conjecture, I should be inclined to attribute the influence which it undoubtedly possesses in certain cases of chorea, to the same principle for which we have recourse to it in the treatment of agues. That principle I have already attempted to explain. It is indeed obscure, but there are strong grounds for believing it to have a real foundation in nature.

* [The *cardamine pratensis* (3i every six hours,) has been recommended by Sir George Baker, and the leaves of the Seville orange tree, (3ss. to 3i thrice a day,) are said also to have cured it. The last has most pretensions. The authority of De Haen and Werlhoff supports it.]

CHAP. VII.

TETANUS AND HYDROPHOBIA.

General Character of Tetanic Affections—Their Diversity of Origin—Tetanus, idiopathic and traumatic—Symptoms and Progress of idiopathic Tetanus—Prognosis—Causes—Enumeration of the proposed Plans of Treatment.—Of Hydrophobia—Its pathological Relation to Tetanus—Mode of its Communication from Animals to Man—Detail of Symptoms—General Character of the Affection—Prognosis—Dissections—Failure of all Attempts to cure the Disease.

To mark the very curious analogy subsisting between these diseases, I have placed them in the same chapter ; fully aware, however, that there are so many and such important *distinctions* between them, as renders it necessary to give to each a separate consideration.

TETANUS.

In the introduction to the first part of the work, an attempt was made to impress upon the student the impossibility of fixing, with any certainty, the boundaries of physic and surgery. Among acute diseases, the principle admits of a simple illustration in the phænomena of erysipelas. It is equally well exemplified among chronic

diseases, in the history of that singular affection to which my attention is next to be directed.

The nosological character of tetanus is derived from the presence of *tonic* or rigid spasm in the voluntary muscles of the body, more or less general. It is in this manner distinguished from the common form of nervous affection, to which the term *convulsion* is popularly applied, and in which contraction and relaxation alternate in rapid succession. Tetanus, moreover, is characterized by the powers of sensation and thought remaining unimpaired; and in this respect also, it is strongly contrasted with epilepsy.*

* [The mental powers are unimpaired in tetanus, excepting occasionally immediately preceding a fatal termination, as in most other diseases; but the defect of sensation in certain organs is undoubted. The low state of the excitability of the stomach is such as to oppose, sometimes, an insuperable impediment to a recovery. Gallons of wine, and ounces of laudanum, the tenth part of which would intoxicate or kill in ordinary health, are not felt in many instances of tetanus. This insensibility seems to pervade almost every part of the body, except the muscles of voluntary motion, in some of the worst cases.

The distinction between the remote causes of tetanus, is of great practical importance. Tetanus occasioned by cold alone, is a very different disease from that which is excited symptomatically by wounds of any kind, although there is some difference among the variety of local injuries leading to the muscular affection. It is to be remarked, that cold, by increasing debility, may become the exciting cause of tetanus, to which the system is predisposed, from wounds of many kinds; but we will first notice the character of idiopathic tetanus, from cold alone, agreeably to the division proposed in the text.

The effects of a *low temperature in hot countries*, is the first item that ought to be considered in accounting for tetanus. We know nothing of this disease in cold latitudes, and little of it, except what we learn from the writers on the diseases of tropical climates; although it is occasionally observed in the middle and southern latitudes of the United States. The high degrees of heat where this disease is to be noticed, usually induces great prostration from excitement, and the diminished temperature of night removes the indirect debility of the day. This is

Nosologists have been at pains to describe different *species* of tetanus. When the affection is confined to the muscles of the jaw and throat, it has been called trismus, or *locked jaw*. When the great extensor muscles of the back are principally implicated, by which the body is bent backwards in the form of an arch resting on the occiput and heels, the disease has received the name of *opisthotonos*. The term tetanus has been restricted to those cases in which the flexors and extensors being equally affected, the whole body is permanently rigid but straight. These distinctive appellations are so far useful as they express

gradual, though certain, under common care; but if in this indirect state of prostration, the body becomes suddenly weakened by a checked perspiration, under a low or damp atmosphere, in which heat is conveyed from the body too rapidly, the excitability instead of accumulating gradually, is diminished; direct is added to indirect debility, and the whole nervous system depressed so low, that a reaction of the heart cannot succeed. Every other department of life seems to be injured and greatly impaired, and the muscles of voluntary motion alone possess not their natural power, but irritability morbidly increased. The excitement of the whole system seems to be transferred to these muscles, and the art in curing the disease consists in depriving them of their undue power, and diffusing it equally over the other departments. The experience of the faculty who have been conversant with the two varieties of tetanus is consonant to this pathology, however imperfectly we may have explained it; and is known to require a different treatment.

In *traumatic tetanus*, the condition of the muscles (which consists in a spastic rigidity) is occasioned by the impression made upon them through the brain and nerves, by a local affection; but such partial injuries are very numerous, and occasion a general disease very different in degree and danger. Tetanus succeeding to the amputation of a limb, is more dangerous than from the injury of a nerve or tendon. Large lacerations are followed by worse consequences than simple incised wounds, or punctures. Although the epithet traumatic has been applied to all lesions of parts followed by tetanus, the treatment required is not the same. We will apply those principles to the treatment of particular states of tetanus in detail. P.]

briefly the different *grades* of tetanic disorder; but the student will bear in mind that they are not to be received as indicating any difference in the *kind* of affection. To these acknowledged varieties in the character of tetanus, nosologists have added two others;—the *emprosthotonos* and the *pleurosthotonos*, the forward and the lateral tetanic curvature. The former is very rare, the latter is rather the offspring of fancy, than the result of accurate observation.

Other distinctions among tetanic cases have been noticed by authors, infinitely more important than those which have reference to the *seat* of spasm. The one is into the *acute* and *chronic*, according to the duration, and consequently the *intensity* of the disease. The other is into the *idiopathic* and *traumatic* tetanus; a division founded on that remarkable diversity in the *origin* of the complaint, which has been acknowledged from the earliest times. It must, indeed, ever be regarded as a very singular fact in pathology, that an affection of so peculiar a character as this, should have its source in causes apparently so dissimilar;—that the puncture of a nerve, the laceration of a tendon, or an extensive burn, should bring on the same *kind* of nervous affection as that which is the occasional consequence of *cold*.

In the further remarks which I have to offer on the subject of tetanus, I shall principally have an eye to the *idiopathic* form of the disease, as being that to which the attention of the physician is principally called. The *phænomena* of the disease, however, from whatever cause arising, admit of very little variation. The exclusive view which is here contemplated will be principally apparent when the *treatment* of the affection comes under discussion.

The approaches of the disorder are commonly gradual,

and it slowly advances to its worst stage.* One of the first symptoms of incipient tetanus is a sensation of stiffness about the neck, which increasing by degrees renders all motion of the head painful and difficult. The patient now experiences an uneasiness about the root of the tongue, which soon passes into difficult deglutition. The aversion to swallowing in this disease is often so great, that the patient refuses all nourishment, and the administration of remedies is rendered equally hopeless. The temporal and masseter muscles are at the same time affected, and the lower jaw being thereby firmly closed, the state of trismus becomes fully developed. In slight cases, the affection does not advance further; but this can rarely be expected. The tetanic disposition once formed, proceeds, with but few exceptions, to exhibit its deeper and more formidable shades of character.

* [This is usually to be observed in tetanus from local injuries, but not often when it proceeds from cold. Some indication of the disease is likely to be observed in eight or ten hours after the application of the cause. A person who lies on the cold ground, especially after rain, or under a dew, almost always feels the disease before the next mid-day. In *traumatic* tetanus, (especially from small injuries,) its approach is evident, sometimes for many days, and in such cases the chances of recovery are increased. Those lighter shades of the disease do not always proceed to the more aggravated general condition of tetanus. The pain at the scrobiculus cordis, which belongs to the worst cases, is probably often prevented by good treatment. This symptom is said by some to be always followed by death; but we have seen more than one instance of recovery from it. In wounds, such as probably may produce tetanus, would it not be well to anticipate that condition of the muscular system, by the means proposed by my colleague, Professor Baker? The Doctor advises the use of opium in such cases, in such portions as will keep up a uniform action so as to prevent the inordinate irritability of the muscles, as well as restrain it. This he thinks should be continued till the usual period of invasion shall have passed. In extensive lacerations, and the severe injuries of tendinous and muscular parts, we think this practice will often obviate all mischief. P.]

One of the most constant and remarkable symptoms of confirmed tetanus, is a severe pain, referred to the bottom of the sternum, and darting from this point backward to the spine, evidently in the direction of the diaphragm. This *constrictive* pain is the precursor of more violent spasms of all the muscles of the neck and trunk. As these increase in force, the body is raised in the form of a bow; and thus it remains until the disease has reached its acme, when the flexors act so powerfully as to counterbalance the extensors, and to retain the body in a straight and immoveable position.

In this extreme period of the disorder, every muscle of voluntary motion becomes affected. The eyes are fixed in their sockets; the forehead is drawn into furrows; the whole countenance undergoes the most extraordinary change. The muscles both of the upper and lower extremities partake of the general spasm and stiffness. Those of the abdomen are strongly contracted, and the belly feels hard and tense as a board. At length a violent convulsion puts an end to the life and sufferings of the patient. These sufferings are usually greater than it is possible for words to express. Their continuance, even during the ordinary period of the disease, would hardly be compatible with life, but for the occasional *remissions* which, in common with the spasms, they undergo.* The muscular relaxation, however, is trifling, and the intervals of ease but momentary. The recurrence of aggravated spasm frequently happens without any assignable cause. Sometimes it is determined by the efforts of the patient to swallow, speak, or change his posture.

When the spasms are general and violent, the pulse is

* Sir Gilbert Blane has recorded one very uncommon case of tetanus, in which the spasms were accompanied with a tingling sensation, rather agreeable than distressing. The case terminated fatally, but to the last no pain was experienced.

contracted, hurried, and irregular. The respiration, too, is similarly affected; but, during a remission, they both usually return to their ordinary state; and feverish symptoms are rarely met with, even in the idiopathic form of the complaint. The same remarkable freedom from disease characterizes the abdominal functions. The appetite not unfrequently remains good throughout the whole course of the disorder. The tongue is always moist, and the skin natural in an early period of the disease. In its progress, however, a cold sweat covers the surface; and there supervenes obstinate constipation of the bowels, requiring the most drastic purgatives. The mental faculties are sometimes preserved entire even to the latest stage of the disorder. Delirium happily comes on in other cases.*

The duration of these distressing symptoms is subject to considerable diversity. Dr. Wells records a case at St. Thomas's hospital, which proved fatal in twenty-four hours. The usual termination of the disease may be stated to occur on the third or fourth day; and very rarely is it found protracted beyond the eighth. It is unnecessary for me to add how very large is the proportion of tetanic cases which end unfavourably.† It is not im-

* [The state of the pulse, skin, and wound, are so variable, that, according to Dr. Hennen, no absolute indication can be drawn from them: The wound, in general, it is true, ceases to suppurate as soon as the tetanus comes on. It is certain, however, that sometimes the disease and the healing of the wound have advanced together, so that death and complete cicatrization have taken place on the same day.]

† [If we include the whole number of cases, acute and chronic, there are more recoveries, than is imagined by the author or practitioners in general.—Tetanus from cold is more frequently cured, than that which arises from large injuries, particularly the amputation of either of the extremities. That which proceeds from punctures, is more under the influence of art, than lacerations, and the extensive injury of nerves and tendons. We presume to assert, that the want of a just discrimination in the treatment of those varieties, is the principal cause of the lamentable fatality of tetanus. We think that almost every case occasioned by cold, can and ought to be cured. p.]

probable that the immediate cause of death may be the implication of the heart itself in the general spasm of the body. In a few instances the patient appears to die as if exhausted by the continuance of excruciating pain.

It is a gratifying reflection, that occasionally, even where the disease has been most fully developed, a favourable event has taken place. In such cases it has been noticed that the decline of the symptoms is very gradual, and that the patient long continues in a state of extreme weakness, suffering at the same time very acute pain in those muscles which had been chiefly affected during the height of the disorder. Dr. Parry remarks that if the pulse rises to 120 on the first day, the case is fatal. If by the 4th or 5th, it does not reach 100 or 110 it ends favourably.*

I have already remarked, that there is a chronic variety of tetanus occasionally witnessed; and I may now add, that it is of a much milder character than the acute species already described. It has been known to continue for five weeks, though it seldom exceeds three. With reference to prognosis, it should also be observed, that tetanus of the idiopathic kind has certainly been cured in a larger proportion of cases than that which follows external injury.

In neither form of the complaint has dissection thrown any light upon its nature or proximate cause. Sometimes slight effusions are found within the cranium.*

* [Those appearances can scarcely be ascribed to local inflammation. There are cases of tetanus accompanied by fever, though they are very rare; and it is more probable that such marks of disease are usually consecutive of the violent spastic rigidity and frequent contractions of the muscles acting by irritation, than of idiopathic inflammation.—The obdurate constipation of the intestines, is frequently owing (at least in part,) to the inordinate quantities of opium exhibited as an antispasmodic.—Males are more liable to tetanus, only in consequence of greater and more frequent exposure to atmospherical causes and local injuries.

There is always more or less of an inflammatory appearance about the œsophagus and cardiac portion of the stomach.* Traces of disease in the theca vertebralis have also been recorded, but they are not sufficiently uniform to authorize our attaching any degree of pathological importance to them. 'A dissolved state of the blood also distinguishes it; and a rapid tendency to putrefaction after death.'

The only known sources of idiopathic tetanus, are cold, and disordered states of the *primæ viæ*. To generate this form of disease, however, it would appear that a certain *predisposition* is also requisite, and it is doubtless the same with that which operates as an *accessary cause* of the traumatic tetanus. The predisposition to tetanic affections is given, in the first place, by warm climates and warm seasons. Within the tropics, therefore, it prevails to an extent unheard of in colder latitudes. Secondly, tetanus is chiefly observed to prevail when the atmosphere is much loaded with moisture, and particularly

Females are more liable to it from punctures and other slight injuries, particularly of the extremities.—Two of our patients suffered an attack from puncturing the fingers under the nail with needles. One from dancing in a tight shoe, which pressed upon a corn. Another suffered a severe attack by paring a corn to the quick. A fourth experienced the disease from a laceration of the gum, occasioned by the extraction of a tooth. A fifth was equally unfortunate from a partial laceration of the fourchette, in the birth of her first child. P.]

* [This is by no means true; in many cases there are no morbid appearances discoverable; and it is probable that those above-mentioned are owing to the violent action of the muscles about the throat, and not to inflammation; and as a proof of this, though appearances of inflammation have been discovered in the bowels, as well as in the throat, yet no adhesions nor pus have ever been seen in tetanus. The intestines are covered with a waxy fluid of a peculiarly offensive smell, differing entirely from the coagulating lymph, the result of enteritis,† or any stage of the inflammatory process.]

† Med. Chir. Trans. vol. vii. part 2d, p. 459.

where this has suddenly succeeded to a long course of dry and sultry weather. Even in this country, exposure to the cold and damp air of the night has occasionally been followed by an attack of tetanus.

In hot climates every class of persons is liable to its ravages. Infants, a few days after their birth, are frequently the subjects of it. The male sex more commonly suffer than the female; and of the former, the robust and vigorous, more than the weak and irritable. Tetanus from cold occurs for the most part within three or four days after exposure to the exciting cause. Tetanus from an injury generally comes on about the eighth day.* It is remarked by Sir James M'Grigor, (who gives the results of his extensive experience in this disease, in the *Medico-Chirurgical Transactions*,†) that if it does not occur for twenty-two days from the date of the wound, the patient is safe from its attack.

Among the questions of greatest interest which the investigation of tetanus presents, are those which relate to the *kind* of wound which is most commonly succeeded by tetanic symptoms, and to the *local* means of prevention and relief. But these are points which belong exclusively to surgery.‡ I therefore omit them, and hasten

* [This variety is governed as to time of accession, in part by the difference in the injury. In small wounds, such as punctures and incisions, with small lacerations, the symptoms are seldom felt till the wound shall have cicatrized, though in some few instances there seems to be almost an immediate association between the part first injured and the muscles of the neck and jaw. In the more properly traumatic cases, from surgical operations, the symptoms are preceded by an unhealthful aspect of the incised parts, at the time suppuration usually begins. The sudden cicatrization of sores, especially on the extremities, gives rise to tetanus. R.]

† Vol. vi. p. 449.

‡ [The means of prevention are twofold. 1st. Such as may prevent the spasmodic affection. 2d. The management of the local injury, after

to the enumeration of the several plans of *constitutional* treatment which have been proposed for this most painful and fatal disorder.

the disease shall have supervened. The best protection against the disease is a free suppuration in the wounded part. We seldom observe tetanic symptoms where this process has been complete. If it were possible to foresee the consequences, it would probably obviate all difficulty. The less the inflammation in the wounded part, the greater is the danger of tetanus. The practice of endeavouring to excite high inflammation in the part originally hurt, has been very generally adopted, and we believe without benefit, and probably it has operated injuriously. Instead of mitigating the ferocity of spasmodic contraction, it frequently foment it. From this fact we were induced, many years since, to adopt a practice which we view as more consonant to the condition of the part, and which has been more useful. The local application of warm emollient cataplasms, has eventuated, in our hands, more propitiously. In great wounds from surgical operations, such as amputations, this practice is more necessary, and is required in all injuries from which the disease may have arisen, during the disease, while the cordial and antispasmodic means may be employed.—Will the removal of the part, whence the irritation originated, cure the disease? This question would be answered in the negative by a vast majority of surgeons and physicians; but we imagine without much experience to strengthen it, or much reflection upon the nature of the injury. If the part primarily injured be a leg or an arm, or other part closely connected with the general vitality of the body, the removal would affect the integrity of the system; but, in wounds of the fingers, toes, or other less important parts, their excision has twice in our hands removed every symptom. The one was cured in twenty-four hours, by the removal of three fingers, which had been crushed in a cyder mill; the other by the removal of a single toe. In the latter case, the disease was cured as suddenly as the toothache can be by the extraction of a tooth. If we could ascertain the precise nerve or nerves, or the exact fibres of a tendon or muscle, might we not liberate the whole system from tetanic irritation? Parts perfectly divided, especially with sharp instruments, do not so often occasion tetanus; and hence we find that partial injuries from rusty nails, splinters, and other lacerating articles, are more apt to be followed with such deplorable consequences. P.]

[The wound is in the first place to be dressed with spirits of turpentine, or by a blister applied over it, or according to Baron Larrey, by

'Their variety must naturally create much perplexity to the student ; and this will be still further increased, when

the actual cautery, completely searing its surface. Amputation of the limb has been advised by Baron Larrey ; but it does not always succeed, though it has in some instances, after opium and other remedies had failed. Pencilling the wound with lunar caustic, or what is better, with common caustic, will be useful to excite suppuration ; the appearance of which, though not an infallible sign of the abatement of the disease, is generally favourable. Free dilatation of the wound, and afterwards the introduction of a piece of lint into it filled with the spirits of turpentine, has also been used with success to excite inflammation. Opium mixed with the dressings has succeeded in the British army, as a preventive.*

Sometimes tetanus originates from the partial division of a nerve ; it should then be divided by the scalpel above the wound, which should be dressed with some stimulating application.

The combination of opium with James' powder, and also with ipecacuanha, in the form of Dover's powder, has been used with success by Dr. Latham, in curing this disease. These remedies, in the dose of 5 or 6 grains of the former, and 10 of the latter, he thought increased its efficacy.† The addition of camphor, musk, and ether, has also been supposed to be valuable. The opium is, however, our main stay ; these remedies may be united with it, as they can do no harm, and may increase its virtues. The musk may be given in the dose of 10 grains with three grains of opium every two hours, and two drams of sulphuric ether, at the same time.

Carbonate of potash in large doses, alternated with opium, has also been used with great advantage by Dr. Stutz of Swabia. Laudanum, if the jaws be so firmly locked that it cannot be given to the patient, may be injected into the rectum, in the dose of 100 or 150 drops every hour or two ; or it may be rubbed over the whole surface of the body, till it affects the system, or produces a relaxation of the spasms. Dr. Eberle, in his *Materia Medica*, gives us some strong testimony in its favour. The above practice of Dr. Stutz succeeded in the hands of M. Bouchet of Lyons, in the quantity of 3i. of opium to three of carbonate of potash in the 24 hours. The testimony of Dr. Morrison is no less decided ; he cured twelve cases by it. That of Odier of Geneva is no less so ; whilst he states that volatile alkali, musk, and ether, have

* Thomas.

† Lond. Coll. Trans. vol. iv.

he discovers them to be of the most opposite characters, and that, while each has occasionally succeeded, it has still more frequently failed.

no effect upon the disease, opium is a valuable remedy in it. Dr. La Roche also states a case, in which its union with mercury had succeeded. Dr. Eberle, however, gives a case, in which it did harm, as apoplexy was the result of its use.* There can be no doubt that the same general principles should govern us in treating this disease as in fevers. If the case be inflammatory, pulse full and tense, bleeding becomes necessary; if otherwise, opium, prussic acid, and other stimuli are advisable.

The character of this medicine as an antispasmodic, naturally pointed it out as a proper remedy in the various forms of tetanus. A considerable number of cases are recorded, in which it has been given in large doses, with success. In many cases, however, in which it has been given, even in monstrous doses, it has totally failed to alleviate the disease for an hour, or even to procure sleep. In some cases it has been not only useless, but positively injurious. In one case it produced sickness, and distressing efforts to vomit, and suppression of urine.†

Its constipating property is directly opposed to a prominent indication in the cure, viz. the removal of spinal congestion; and even if it removed the spasms, the stomach may be ruined by the narcotic effects of the enormous quantities of the drug, which a cure would require. Such an occurrence actually took place in a patient of Dr. Robert in the West Indies, who had been cured of tetanus by large doses of opium. He was soon affected with a diseased stomach, of which he died; and when opened, that organ was found inflamed and mortified.‡ But notwithstanding these bad effects of this most valuable medicine, it is still our sheet anchor; and has cured more cases than any other remedy. Dr. Rush, whose name cannot be mentioned without the greatest respect, recommends blood-letting§ in preference, and to a great extent. In a case recorded in the *Medico-Chirurgical Review*, April 1820, 130 oz. were taken away; active purging and blisters were employed at the same time. It has also succeeded in other instances.

In a case|| of traumatic tetanus, bleeding twice repeated, the first time to 20 3. the next to 10 3. with the happiest effects: the pulse, when

* *Materia Medica*, vol. ii. p. 30.

† *Barton's Med. and Phys. Journal*, vol. i. p. 48.

‡ *Rush's Works*, vol. i. p. 247. Second edition.

§ *Ibid.* Defence of Blood-letting.

|| See *Eclectic Repertory*, vol. vii. p. 43.

When we reflect upon the obscurity which involves the proximate cause of tetanic affections, we need not wonder that the practice in them should still be entirely empirical.* Ignorant as we are of the very elements of their

the first bleeding was practised, was bounding and full : the spasms immediately became less violent and shorter. A dose of Dover's powder was given him at the same time : Another physician ordered some wine and sago, which aggravated the disease ; the second bleeding was then taken with the best effects ; the pulse became softer, and the patient broke out into a profuse sweat ; the spasms abated, and the blood was strongly buffed and cupped. In the evening some more blood (20 3.) was taken in consequence of a return of the spasms ; and in the course of the night 12 3 more in consequence of the fulness of the pulse : sleep returned ; but in consequence of the repetition of the wine it became necessary to bleed the patient again : Some porter was exhibited to him in the night, which increased the spasms, and in the morning he expired. The tobacco injection was tried in this case, but it gave so much uneasiness that it could not be persevered in. The author, Mr. Earle, of London, proposes as a substitute the tobacco suppository.]

* [We cannot subscribe to this general reflection upon our science. The use of general remedies through the stomach is the great source of controversy among physicians. Idiopathic tetanus from cold cannot be treated upon principles similar to those that are indicated in such cases as proceed from wounds. Besides the attention necessary to the local injury in the latter, we are bound to guard against the morbid irritability of the muscles, and support the general strength, by opium, wine, alcohol, and all the other stimulating powers. Opium will sometimes fulfil the first indication, but is alone insufficient : good wine is the strongest agent we can command, and the quantity administered of both should be according to the exigencies of the case. Together with these means mercury should never be omitted, except in tetanus from large wounds, and in these only because salivation cannot be effected. Every possible mode of exciting pyalism should be essayed. No patient dies of tetanus after a free mercurial discharge from the salivary glands shall have been effected. Calomel, in any quantity, may be combined with opium, or employed alone as a cathartic. The quantity usually employed is mere tantalization. The mercurial emetic : Hyperoxy. Mur. Merc. in the manner recommended in trachitis is not only justifiable, but necessary and often successful, when no other means can succeed, that we

pathology, it cannot be expected that theory should assist us; and though the most extended trials have been made, experiment has hitherto completely failed in unfolding the secret of their cure. We have no reason, however, to consider tetanus as beyond the reach of medical art. It is our duty, therefore, to persevere in our efforts; and till a brighter epoch arrives, to employ diligently those means of relief which have hitherto been attended with the greatest degree of *comparative* success.

1. Opium is the remedy on which we are to place our chief, if not our only reliance. To give it a fair chance of success, we must begin its use from the earliest appearance of tetanic symptoms. It must be given in very large doses; and these doses must be repeated at such short intervals as to keep the system constantly under the influence of the remedy.

It is astonishing to observe how the body, when labouring under a tetanic disease, will resist the operation of this and other remedies, which in its healthy state would have been more than sufficient to overpower and destroy it. It is advisable to begin with fifty drops of laudanum, and to repeat this at intervals of two or three hours, or even oftener, if the urgency of the symptoms requires it, until some effect has been produced on the spasms. In the early stage of the disease, we are to bear in mind the approaching closure of the jaw and difficulty of degluti-

know. Although the chances of success by mercury are not so great in tetanus from wounds of any kind, in small injuries we may often succeed. In case of great irritability in the part locally affected, we think the general as well as the local warm bath is often highly necessary. The greater the irritability of the system, the less power will be exerted by mercury.

It is the property of mercury to increase the irritability and sensibility of the whole system, and hence in the tetanus of hot climates, where great indirect debility predisposes, the disease is more effectually managed by mercury and the affusion of cold water. There are very few cases of this variety that cannot be cured by mercury. P.]

tion ; and our remedies are to be pushed before such serious obstacles to their administration arise. Where they have occurred, and are found insuperable, opiate enemata and frictions may be tried ; but we must not anticipate much benefit from such feeble means.*

2. Purgatives claim the next place. Sir James M'Grigor informs us, that the operation of calomel on the bowels was always useful, and singularly so in the mild form of tetanus, distinguished by the spasms coming on *slowly*, and continuing of the *same* violence. A rigid perseverance

* [Tetanus has been cured by wine given in large quantities internally by Dr. Currie of Liverpool, and Dr. Hosack of New York.† I have cured it with large quantities of ardent liquors ; (gin and brandy). It has also been suspended by Dr. Trezevant of Columbia, by the prussic acid : a remedy originally proposed by Brera.‡ It was given in the dose of two drops repeated every two or three hours : by the neglect of the nurse it was not continued and the patient received a new injury in the wound, which originally produced it, and its good effects were lost : From the details of this case no remedy so richly deserves a trial as the prussic acid in this frightful disease.§ As it completely annihilated the disease three successive times. Dr. Pattison of Baltimore succeeded with caustics applied to the spine, and prussic acid given internally.]

Tetanus has also been treated with success by Dr. Brown of Kentucky, formerly professor of the practice of physic in Lexington, by giving ʒiss of tincture of cantharides, which produced inflammation of the whole tract of the intestinal canal.||

The combined effect of wine and a salivation has also cured it ; it should always be carried to intoxication, and that state should be kept up till the disease has entirely subsided : A salivation is an old remedy ; it was used by Stoll and no doubt is valuable. I have seen it succeed in the Pennsylvania Hospital, with opium and wine.

Electricity, and the petroleum or Barbadoes tar, administered internally, has been said to be useful. They do not deserve much attention.]

† See Med. Repos. vol. iii. p. 22.

‡ See Eclectic Repertory, vol. ix p. 278.

§ Med. Recorder for 1825.

|| Med. Repos. vol. iv. p. 339

in the exhibition of purgatives (wherever practicable) is therefore to be advised.*

* [As the bowels are obstinately bound in this disease, the doses of the medicine used must be much larger than are commonly exhibited. When any difficulty occurs in procuring copious evacuations, tobacco smoke, or tobacco glysters should be injected. The proportions for the latter are, a scruple to half a pint of water. Besides the purgative effect of the tobacco, it is highly probable that good effects will be derived from it, by its nauseating the stomach, and the consequent relaxation of the muscles which will follow. Dr. O'Beirne, of the British army, gives a case in which it was used with success.† Other means must then be employed, which have been sanctioned by experience. These are, 1st, The oil of turpentine. This has been given with the most marked and speedy success, first by Mr. B. Hutchinson;‡ and his example was followed with a similar result by Mr. Torrs,§ and more lately by Dr. V. Mott, of New York.|| In the two first cases, the disease, which was obstinate and alarming, supervened to epilepsy; and in both, bleeding largely and purging were premised. The dose was half an ounce of the oil every two or three hours, in gruel. In the last, it followed a severe contused and lacerated wound, and continued for "several weeks," resisting amputation of the limb, hot and cold bath, tobacco, opium, bark and wine, and blisters to the spine. A tea spoonful of oil of turpentine was given every fifteen minutes for two hours, when the spasms ceased. The oil was continued at longer intervals, until the patient took 123 in the course of thirty-six hours from the time of its first administration.

Inflaming the skin along the course of the spine by caustic potash. This remedy was first tried by a practitioner in the West Indies, and since by Dr. Hartshorne of Philadelphia, in August 1814;¶ by Dr. T. Thomas, of Easton, Maryland; ** by Dr. Worthington, of the District of Columbia; †† and by Dr. Joel Lewis, of Pittsburgh, ‡‡ with the most decided good effects. Dr. Potter of Baltimore has also succeeded with it. The cases were produced by wounds. The mode of using the remedy is, to tie a piece of sponge to a fork, and after dipping it in a

† Med. Recorder, vol. vii. p. 106.

‡ London Med. and Phys. Journal, vol. xlix. p. 114.

§ Ibid. p. 380. and Med. Recorder, vol. vi. p. 535.

|| New York Med. and Phys. Jour. vol. ii. p. 388.

¶ Eclectic Repertory, vol. vii. p. 245.

†† Med. Recorder, vol. iii. p. 55.

** Ibid.

‡‡ Ibid. p. 170.

3. Of the remedies which have been employed for the

watery solution of the caustic, in the proportion of a drachm to the ounce, to apply it along the spine, until an inflammation is produced.

The idea of the seat of the disease being in the medulla spinalis, was first promulgated by Galen, and adopted by Willis and others after anatomical investigations; but it ceased to command attention until 1791, when Dr. John Franck adopted it, and recently Dr. Reid of Dublin, in an express work on this disease and hydrophobia.* It serves to confirm the theory, that Dr. Rush many years since recorded the fact of his having seen tetanus in a horse cured by the application of the cautery to the nape of the neck.†

When the disease follows amputation of a limb, it has been lately found (although the authority cannot be called to mind) that it was immediately suspended by the application of laudanum to the stump. This remedy may come in as an adjuvant to the oil of turpentine and caustic.

As a preventive of this sad occurrence, the bowels should be kept in a loose state during the whole period of the cure. A stool must be procured every day, either by a due regulation of the diet, or by laxative medicines. The good effects of this practice, in preventing tetanus after gunshot wounds and amputations, was experienced in a striking manner in the Gorgon (British) hospital ship, at the mouth of the Mississippi, in 1814. Dr. Boyd justly attributes the freedom of the wounded from tetanus "to the bowels having been kept open during the whole period of their confinements." Several cases occurred, but with the exception of two, not one treated on board of the ship exhibited the slightest appearance of the disease.

Dr. Dewar, surgeon of the ship Queen Charlotte, bearing the flag of the commander in chief, at the attack of Algiers, ascribes the immunity of 700 wounded from the disease, to "constant attention" to the same point.‡

* Dublin, 1817. See *Med. Recorder*, vol. i. p. 240. for an account of Dr. Reid's theory. The dissections of Dr. Reid and others, leave no doubt as to the correctness of the theory which attributes tetanus to spinal congestion.

† *Medico-Chirurg. Jour. and Rev.* vol. v. p. 20.—The reader is referred to the *Edinb. Med. and Surg. Jour.* for 1818; and to the *Phil. Med. Recorder*, vol. ii. p. 115, for an interesting paper by Dr. Abercrombie of Edinburgh, "On the Diseases of the spinal marrow;" and to the *Lond. Med. and Chirurg. Jour. and Review*, vol. iii. for Dr. Saunders' *Obs. on Spinal Diseases*. The facts and reasoning in these papers strongly show the great influence which a state of congestion in the vessels of the spine, have in the production of spasmodic and other diseases.

‡ *Johnson's Med. and Chirurg. Journal*, vol. i. p. 471.

cure of tetanus, none have acquired a higher degree of

The records of medicine show, that tetanic affections have sometimes been induced by the irritation of the stomach and intestines; and which, by a wonderful and almost inexplicable sympathy, is communicated to the muscles and nerves of the different parts of the body. It is only necessary to appeal to the experience of most old practitioners, to call to their recollection many such cases. A recent one in point, by Dr. Thomas of West Chester, Pennsylvania, has been communicated to the public.*

In the southern states, and in the West Indies, intestinal irritation from this cause, and a general vitiated state of the contents of the stomach and bowels, it is well known commonly produce tetanic affections in negro children. When, therefore, a child is thus affected, the attention should be in the first instance directed to this fruitful source of infantile disease, and to the thorough opening of the bowels.

The trismus nascentium appears from the observations of Dr. Colles to arise from the wound inflicted on untying the umbilical cord. The umbilical arteries, vein and peritorium surrounding them, he found to be highly inflamed, on dissection. In Jamaica, a dressing with the spirits of turpentine and plunging daily in the cold bath, are effectual preventives of this terrible disease.† The spasm is not confined merely to the jaw, but extends over the whole body. It attacks, according to Underwood, not earlier than the sixth, and not later than the ninth day from birth; and is usually attended with costiveness. It is said to have been produced by the smokey air of houses which have been built without chimneys; also by worms. With regard to its causes, we are entirely in the dark. The remedies most likely to succeed are oleum succini, musk, and wine, given internally. As, however, these plans have not uniformly succeeded, it would be proper to try those above recommended for tetanus, in their appropriate doses. Drs. Hamilton and Burns speak favourably of purgatives freely administered in this disease. Their experience seems to be the result of trials in a few cases only. We agree with Dr. Eberle that their efficacy is by no means established in this disease. It should be treated as above directed according to the symptoms; choosing those remedies which suit the state of the pulse.‡

When the disease occurs in hysteria and epilepsy, bleeding, if required by the state of the system, and smart purging, should be prescribed, and followed by the oil of turpentine. If depletion be not necessary, this medicine may be given in the first instance.]

* Med. Recorder, vol. vi. p. 285.

† Ibid. vol. i. 276.

‡ Eberle's Mat. Med. vol. i. p. 97.

credit than the cold bath. Dr. Wright has detailed* several cases, both of idiopathic and traumatic tetanus, occurring in hot climates, in which it was had recourse to which complete success. Later experience, however, has shown, that in tetanus from wounds, it is of little or no avail.†

The other plans of constitutional treatment which have been devised for the relief of tetanus, may be discussed in a few words. The warm bath is now generally abandoned, after the most satisfactory proof of its inefficacy. Bleeding is equally to be condemned. The employment of wine, bark, and aromatic cordials, comes recommended to us on the strong authority of successful experience. Camphor, musk, and other antispasmodics deserve a trial. Tobacco Enemata have acquired some reputation. Mercury has been proved, by adequate observation, to be totally inert.‡

* See Medical Observations and Enquiries, vol. vi.

† [When tetanus proceeds from cold a smart emetic will sometimes speedily remove the rigidity of the muscles; the cure is then to be completed by promoting perspiration. For this purpose, if convenient, the patient may be immersed in the warm bath; and after coming out he should be instantly wrapped in a warm blanket, put to bed, and supplied with hot whiskey punch, and occasional draughts of weak hot infusion of Virginia snake-root.—Should this practice not succeed; the cold bath by affusion, followed by powerful frictions, and a renewal of the sweating process, will succeed.]

‡ [Camphor, musk and ether, have been found auxiliary only in a small degree. The two latter are too fugitive to be relied on, and the former is not strong enough, unless we use a very large dose; and then it seems to depress by diminishing sensibility.

The *ol. succini* has been found more useful. It is a better antispasmodic.

The Tr. Cantharid. has proved successful (we judge) by exciting strangury, for which purpose large and repeated doses may be given.

The moxa has been favourably reported, as a remedy in tetanus. P.]

HYDROPHOBIA.

This disease is usually considered by pathologists as the consequence of a morbid poison, introduced into the system by the bite of a rabid animal. The general features of the disorder correspond perfectly with such a notion; but it is not to be overlooked, that a strong analogy exists between hydrophobia and tetanus, and that the former might, with no inconsiderable claim to pathological accuracy, be viewed as a kind of tetanic affection, supervening upon wounds of a particular character. The points of analogy between these diseases will appear as I proceed to describe the symptoms and course of hydrophobia; but I wish first to call the attention of the student to an important *distinction* that exists between them. Idiopathic tetanus we have seen to be both a frequent and a very fatal disease. Idiopathic or spontaneous hydrophobia has *never* been known to occur in the human subject,—never at least under such circumstances as to remove all suspicion of preceding local injury.*

* [The appellation, *hydrophobia*, is improper, because it is only a symptom of *canine* madness, and not always of that. It is moreover improper, because it is incidental to other diseases. It is to be observed, occasionally, in tetanus, hysteria, cynanche tonsillaris, tracheitis, and, in certain inflammations of the stomach, which are sometimes communicated by the extension of disease, or through sympathy to the œsophagus. The association of this symptom with other diseases has caused a great many spurious cases to have been reported. The canine virus is one sui generis, originating always in one of the species of the genus *canis*; and no instance ever was known of this disease, in any other genus, except in the derivative way. The analogy between canine madness, and tetanus, has been attempted to be established, both by Dr. Ferriar, and Dr. Rush, but the similitude seems to be very much strained, too vague to furnish any valuable pathological or therapeutic data. The distinction set up by the author is clear; but there are other considera-

Hydrophobia has certainly existed from a very early period of the world. The first allusion to it is to be found in the writings of Aristotle; but it is to Cælius Aurelianus that we are indebted for the original description of the symptoms and progress of the disease. From his time, unceasing attention has been paid to every phenomenon which it presents, and nothing is wanting, which observation can supply, to perfect our knowledge of it. Like tetanus, however, its cure has hitherto equally evaded the suggestions of pathology, and the blind attempts of empiricism. The investigation of the disease, therefore, must be conducted with a view to elucidate its peculiarities and pathological affinities, without any prospect of practical advantage.

From the most distant times inquiries have been directed to ascertain, what animals are capable of originating, receiving, and propagating hydrophobia, and what

tions, that demonstrate the total diversity of the two diseases. The causes in which tetanus originates, all tend to destroy the sensibility of the body, while the action of the canine virus, always increase it. Canine madness is an *irritative fever*, from the operation of a poison, which is positive; tetanus more frequently proceeds from a privative source.—The poison seems to exert a strong specific influence upon the stomach, pharynx and salivary glands, but this cannot be safely affirmed of tetanus.—In tetanus we observe an inordinate spastic rigidity of the muscles, which constitutes the most prominent feature in the disease.—In canine madness, the disease consists in a *succession of convulsions*, evidently excited, by a poison occasioning a sympathetic action in the sensorium. The only point in the supposed analogy is derived from the dread of water which is sometimes to be observed in tetanus; and it is more than probable, the causes of this symptom is different in the two affections, of the muscles of deglutition. Whatsoever may be the rationale of the aversion to water, in canine madness, it certainly is to be referred, in tetanus, cynanche tonsillaris, and some other diseases, to the apprehension of pain in the exercise of the muscles of deglutition. Is it not probable, that the exquisite sensibility of the same parts, associates the idea of drinking with pain in canine madness? P.]

is the precise mode of its communication from animals to man. The opinions of authors on these subjects have been mixed up with many idle tales, but the following may be taken as a summary of the best established results to which their researches have led. The disease almost always commences among animals of the canine race. It is questionable how far it ever originates even in those of the cat kind. To them, however, it is readily *propagated*, and they possess, equally with dogs, the power of transmitting it to man, and to every species of quadruped. It is a matter of doubt, whether birds are susceptible of the disease. Herbivorous animals appear incapable of communicating it, and this is even still better ascertained with regard to man. Innumerable attempts have been made to propagate the disease by inoculating animals with the saliva of persons labouring under hydrophobia, but they have always failed.*

* [It can be propagated with equal certainty, by any animal that may have derived it from the canine species. The poison is always competent to communicate its own nature, as long as it is canine madness; and it matters not in what quadruped or biped it exist. The feline genus has no more capacity to receive it or power to convey it, than a cow, a sheep, a hog, or a goose, all of which have propagated it fatally within our own knowledge. A man can communicate the disease as well as any other animal, provided the poison be brought into contact with the nerves; but like all other poisons found in venomous animals, it may be rubbed on the skin or even taken into the stomach with impunity. The transmission of the poison through many genera, or species, will not alter its properties or vary its effects. It either produces the phenomena of original canine virus or it occasions none.—As to spontaneous canine madness, or hydrophobia, or any other disease, it is almost superfluous to remark, that there can be no such origin to any disease. Although we do not know in what it essentially consists, we know there must be a cause to every effect. We do not know the chemical qualities of the cause of the cure of yellow fever, or the small-pox, but when we use the epithet spontaneous, we only acknowledge our ignorance of its origin. P.]

Of the causes of this peculiar distemper in dogs nothing certain is known. That it originates *spontaneously* in them is now the general opinion; but it is equally well ascertained that among them it chiefly spreads by inoculation. In respect to the mode of its communication from animals to man, the facts in proof of the reality of a peculiar infectious principle are too numerous to admit of dispute. It is universally allowed, that the poison cannot operate on the sound skin. In many instances, indeed, the wound has been so slight as to escape notice; but it may be stated as an invariable law, that for the hydrophobic virus to take effect, it must be applied to an abraded, wounded, or ulcerated surface.

A question has arisen, whether the infectious principle resides in the salivary secretion, or in the mucus of the trachea and bronchia. It has even been conjectured, that it is more or less diffused through all the solids and fluids of the rabid animal. This latter suggestion may at once be set aside; but the former opens a curious subject of inquiry. The appearances of inflammation so common about the pharynx, render it by no means improbable that the mucous secretion of that part may undergo some change, by which it is enabled to propagate the disease.*

There is some difficulty in ascertaining how it happens, that of a number of persons bitten by a rabid animal, a certain proportion only are subsequently attacked by hy-

* [The appearances of inflammation "about the pharynx" seem to be the effects of morbid action, and are not known to be attended with any unusual secretion; hence it would seem more probable, that the glands in the fauces are the principal, if not the only source of the poison. All the causes of disease, especially all poisons, seem to be located and confined to some particular series of texture, and certainly poisonous animal secretions observe a peculiar elective propensity to effect similar parts. It is possible, that the secretion from the pharynx may participate in engendering this poison, but it is very unlikely it should be the only source of mischief. P.]

drophobia. The influence of prophylactic measures may be altogether excluded, and differences of constitutional disposition can hardly be trusted to. The circumstance is probably referable to the ineffectual application of the poison in the cases that escape. This conjecture is rendered the more probable by the acknowledged fact of bites upon the face and hands being always more dangerous than where the tooth had previously passed through cloth or leather.

Hydrophobia, as it affects dogs and other animals, exhibits a very different train of symptoms from that which is observed when man is the subject of the disease. For the former, I beg to refer to a very ingenious paper by Mr. Meynell;* the latter, I shall now proceed to describe, partly from my own observation, and partly from the very admirable memoir on hydrophobia, published by Dr. John Hunter.†

The interval between the bite and the development of hydrophobic symptoms (in other words, the *latent period* of the virus,) is subject to considerable variation. Among the *genuine* cases which I have seen recorded, the shortest period was twenty-one days, and the longest nine months. Six weeks may be stated as the average; after which time the chances of escape are greatly increased. It is a curious circumstance, that during all this time there is no local irritation observable in the bitten part, nor any derangement of general health, or perceptible change in the constitution, provided the person bitten be not under the influence of fear.

For two or three days previous to the coming on of the more unequivocal symptoms of the disease, the patient

* Duncan's Medical Commentaries, vol. xix. p. 90.

† Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. art. 17.

often complains of chilliness, some degree of headache, languor and lassitude, low spirits, and restlessness.*

Frequently also a sense of coldness and numbness is experienced in the bitten part, occasionally amounting to actual pain. This, in some instances, extends up the limb, and it has been observed to follow the course of the nerves rather than that of the absorbents. The freedom of the lymphatic glands from disease, indeed, has often been noticed, and adduced as an argument that the disorder does not depend on the absorption of any virus.

The second or *confirmed* stage of hydrophobia commences with that symptom which gives name to the disease—the horror of liquids. The distressing sense of suffocation, and the violent spasmodic agitation of the whole body, brought on by the sight of liquids, or the attempt to drink, is unquestionably the most remarkable

* [All those indications of approaching disease are highly characteristic of fever, of which they constitute the first of the process arising from irritation. Inflammation of the bitten part is sometimes to be noticed, and corresponds with the other precursors of fever. It is scarcely probable that the virus is absorbed, and it is certain that whatsoever acts upon the body, so as to increase the sensibility of the nerves, facilitates the action of the poison. Why should it not be absorbed at first, as well as at any subsequent period? The various periods of accession, after the infliction of the poison, is at variance with the laws of other secreted poisons, which give rise each to its specific disease, in a space of time nearly uniform.

We think the manner in which death is brought about in canine madness cannot be mistaken. All poisons extinguish the vital principle by a deadly influence on the nerves, conveyed through them to the brain. If we knew how electricity kills, or the prussic acid, or arsenic, or sublimate, we would know the effects of the canine poison. If, however, we say we know what *precise* change is occasioned in either brain or nerves from a state of health to death, we deceive ourselves when we speak of either. It is enough for us to know, that this poison by its action upon the nerves, always occasions death unless it be removed before it act; or the poisonous action be destroyed by medicine. P.]

symptom of the disorder. By degrees the disposition to spasm increases so much upon the patient, that not merely the sight of water, but the least exertion of speaking or moving, the slightest noise, or the entrance of a stranger into the room, brings it on. Extreme irritability and sensibility of the whole frame are apparent indeed in every action of the patient, and constitute the unvarying feature of the complaint.

It might be imagined from the very general use of the term *canine madness*, that delirium was one of its usual symptoms. But this is not so. In a large proportion of hydrophobic cases the mind has continued perfectly clear up to the last moment. In others, where delirium did occur, it was not until a late period of the disease. But though the patient is sensible, he is in the highest degree timid and *nervous*. As the disease advances, the mind is more and more filled with dreadful fears and apprehensions.

Excessive anxiety is apparent in the countenance. Almost immediately after the disorder distinctly manifests itself, the respiration is hurried and *gasping*, and the patient commonly complains of an oppression about the præcordia. The pulse is seldom much affected till towards the latter periods of its course, when it becomes small, irregular, feeble, and rapid. Blood has frequently been drawn from the arm; but it has never, I believe, been observed to exhibit any inflammatory crust.

The secretions about the mouth are always very much affected. The saliva is usually viscid, and increased in quantity. The patient complains of a parched mouth and thirst, on which account he continually calls out for drink, which yet no persuasions can induce him to look at, much less to swallow. A frothy saliva is frequently ejected, to the great terror of bystanders; but it arises merely from the patient's inability to swallow.

Hydrophobia is not characterized by any great degree of debility: instances have occurred of persons running a considerable distance, and making great muscular exertion, within a few hours of their death. The degree of bodily weakness which has been observed in particular cases, is perhaps as much attributable to the remedies employed, as to the natural effects of the disorder. Its duration varies from two to five days, reckoning from the invasion of the *pathognomonic* symptom. The average does not appear to exceed forty hours. The *immediate* cause of death has never been very accurately ascertained, either in the case of tetanus or hydrophobia. Some patients die in a convulsion fit; the greater number sink under the excessive exhaustion of nervous power.

The prognosis in hydrophobia may be discussed in a very few words. There is not, to the best of my judgment, a single unequivocal case on record, of recovery from this disease.* A variety of supposed cures may

* [Dr. Arnell, of the state of New York, gives a case in which pumping on the patient for two hours and a half, during which time the convulsions produced by the cold water continued: the patient then rose and walked away much relieved.† Celsus advises this remedy as the only one which succeeded in his day. Several other cases might be pointed out in which treatment was successful. Thus Dr. Munckley cured two cases, one by salivation, and the other by opium:‡ Dr. Schallern, of Bayreuth, in Germany, cured a case by belladonna and cherry laurel water.§ The author is therefore too decided. Hydrophobia varies in every degree of intensity, from its mildest symptomatic form, to the most obstinate and generally incurable variety, the result of the direct application of the virus by the tooth of an animal: Sometimes it is intermittent, returning every two weeks or a month, with the changes of the moon: As in Dr. Peters' case, related in the Philosophical Transactions, 1745, No. 475, Lond.; those of Selle, quoted by Good, p. 236, vol. iii. and also the singular case of anxiety with spasms

† Med. Record. 1824.

‡ Med. Transact. vol. ii. art. xii. p. 192. also art. xv. p. 222

§ Eclectic Repertory, vol. i. p. 512.

indeed be found. The first volume of the Transactions of the London College of Physicians contains two; but the slightest reflection will convince the reader, that neither in origin, symptoms, or progress, did they substantiate their claim to the character of hydrophobia. It must be viewed, therefore, as the only known disease which has hitherto completely resisted the efforts both of nature and of art.

This melancholy fact cannot be imputed to any neglect on the part of the cultivators of morbid anatomy; on the contrary the appearances on dissection, in those who die of hydrophobia, have been recorded with a degree of minuteness, which, favourably as it speaks for their zeal, is a proof at the same time how little aid their labours are calculated to afford to the mere *practitioner* in physic. The usual appearances are turgescence of vessels (by some called marks of inflammation) about the pharynx. In some cases, a similar state of parts has been observed about the cardiac orifice of the stomach. Sir Astley Cooper, from a minute examination of several dogs who have died rabid, has found reason to believe, that it consists in an effusion of blood in the cellular membrane connecting the mucous and muscular coats of that organ. No morbid appearance has ever been traced in the brain.

A detailed exposition of the different means which have been resorted to for the relief of hydrophobia would be attended with little benefit to the student. It could only impress upon him that which I have already attempted

of the chest, produced by the bite of a cat from Morgagni, which returned every month, and continued for two years; this last case connects it with epilepsy. Like tetanus there is the same numbness, tingling and dead indescribable feeling in the place bitten, previous to the appearance of the disease: Like some cases of epilepsy there is a sensation of a peculiar kind, running up to the body from the bitten part: These analogies, however, are sufficiently obvious.]

to urge, the uniform fatality of the disease, and the inefficacy of medical art. It will be sufficient to say, that an ample trial has been given to blood-letting, opium, mercury, ammonia, arsenic, musk, and many other antispasmodics; besides a variety of drugs which had nothing to recommend them but the caprice of the practitioner. The latest trials have been made with blood-letting; and though it acquired a doubtful fame in India, the experience of this country has decidedly proved it to be unworthy of general adoption.

Where all plans of treatment have alike failed, it is obviously impossible to offer any useful suggestions for the guidance of the student. *Prevention*, and not cure, must be his object. It is unnecessary, with this view, to inculcate formally the simple dictate of common sense—a speedy excision of the bitten part. If this is effectually done, the safety of the patient may be considered as ensured. Instances, unfortunately, are not unfrequent of hydrophobia supervening after such an operation; but it is fairly presumable that in such cases some minute wound had escaped the eye of the surgeon. Caustic may come in *aid* of the knife; but considering that the life of the patient is at stake, it should never be allowed to supersede it.*

* [The affusion of cold water, mercurial unction, and all other external applications, are worse than useless: they are cumberers of the ground, that should be occupied by better means.

The internal means of prevention are not much better entitled to the attention of physicians; and even should any of them be found to have succeeded, it is not always easy to determine that the disease has been prevented by them. There are a great number of persons bitten by rabid animals, who have escaped, although no prophylactics had been employed. There are nevertheless some agents that seem to claim a superiority. The whole tribe of vegetable nostrums that have obtained a fictitious celebrity, now repose among the lumber of ephemeral credu-

On the preventive *remedies*, sea-bathing, and the Ormskirk and Tanjore specifics, I have of course nothing favourable to report. The whole subject is painful, and I

lity,—such are the boasted virtues of the scutellaria, alisma plantago, and many others.*

Mercury has been extolled, and often condemned, as a prophylactic of canine madness; nevertheless we cannot discredit all the reports that have been made in its favour. One medical gentleman in this state excited salivation in forty persons bitten by rabid dogs, that had communicated canine madness to many inferior animals, and in none of them did the disease follow. In none of these were there any other medicine used, generally or locally.—Another, who in the course of a practice equally extensive, salivated thirty-four persons under similar circumstances of danger, out of thirty-five, had the misfortune to find, that the only one, in whom no salivation was excited, experienced the disease in six weeks from the date of the bite, and it terminated in death in four days. It was afterwards ascertained, that the subject of this case had deceived his physician, and had not used a dose of the medicine.

It would seem from the following facts, that mercury is endowed with the power of arresting the progress of the poison in the inferior animals, and in that species of the genus *canis* from which it most frequently originates.

In February 1811, we gave eight grains of the sub-muriate of mercury, each second day for twenty-five days, to seven of a pack of hounds that had been bit by a mad dog. There were eight bitten, but one of them being superannuated, the owner declined taking the parcel of mercury prepared for him. On the forty-fifth day from the infliction of the bite, the dog that took no medicine was seized with the disease. The seven, to each of which the medicine had been faithfully administered, escaped.

During the residence of the late Dr. Barron, as attending physician at Fort M^cHenry, he had two dogs bit by a rabid dog; and at our solicitation, he treated one of them with mercury, as above stated, but suffered the other to run at large without any preventive measures. The former did not receive the disease, while the latter was attacked on the twenty-ninth day from the infliction of the bite.

* The scutellaria, which may still induce some unfortunate person to rely upon its boasted virtues, has been proved by Dr. W. P. C. Barton, professor of *Materia Medica* and Botany in the Jefferson College, to be perfectly inert, as is all the family to which it belongs.

gladly leave it, in the hope that science or chance may one day furnish us with a means of combating, even partially, this formidable malady.

These and many other examples that might be detailed, cannot be reasonably viewed as the effects of chance; and they would seem to afford a vehement presumption in favour of mercurial preparations. Whether it act as an antidote, by a change wrought in the absorbents, or by occasioning a condition of the solids incompatible with the action of the poison, the facts are irrefragable.

The question whether canine madness has been cured, will be answered in the negative by a vast majority of the faculty of physic. The difficulty consists in ascertaining the real character of a great variety of cases that have been from time to time reported. There are upon record many spurious cases that have terminated happily: some of them were unquestionably hysterical affections; others, good examples of tetanus; and others, counterfeited canine madness under a variety of anomalous spasmodic affections. Notwithstanding the admission of these truths, which will scarcely be controverted, it cannot be denied that the real rabies canina assumes such a variety of shapes, that it is sometimes exceedingly difficult to determine the true character of the case. To those who are so fastidious in their diagnosis as to require all the pathognomonic signs laid down in synoptical tables, we will aver that they probably never will find them all in any one case. Although we have never had the treatment of a case of canine madness, we have seen and critically watched the progress of four cases, all of which terminated fatally; and we confidently assert, that no two of them corresponded in their symptoms. In two of them the pulses were frequent and tense; in one they were weak and frequent; in the other they were natural, but a general stupor reigned over the whole system, as though the poison had so nearly obliterated the vital spark, that the power of the heart had almost ceased to be exerted. It is well ascertained, that stimulants and tonics, and that variety of either denominated antispasmodics, have invariably failed to effect a cure.* It is also well understood, that blood-letting has generally proved ineffectual; but it is not certain that it has been employed to that extent which would be justifiable in a desperate disease, that has defied almost every resource of

* Dr. Eberle, in his valuable book on the *Materia Medica*, mentions Dupuytren and Magendie as having tried the effect of the injection of opium into the veins in hydrophobia. Though administered in this manner in the dose of eight grains, it did not even produce sleep. A young man was the subject

science.—Mercury has probably seldom been pushed to an extent commensurate with the malignity of the disease. We have elsewhere reported two cases, which we can but view as fair specimens of canine madness, one of which terminated happily under the combined powers of mercury and blood-letting, and the other under a precise mercurial pytalism. Some physicians more fastidious of pathagnomonic signs than ourselves, have questioned the genuineness of both these cases; and as the success of those means is still problematical, we say dies doceat. We will add, that the belief of its indestructibility, has contributed to make it so.

How far the powers of *lead*, lately so triumphantly reported, may become worthy of imitation, can only be determined by experience. If the disease should be proved to be a *specific fever*, arising from a poison sui generis, as we are persuaded it must be, the route to a clear therapeutic view will be much shortened, and the agents for averting the deleterious effects of the poison may be discovered. P.]

[The circumstance of hydrophobia having appeared after a supposed complete excision of the bitten parts, may be accounted for, not only from the cause mentioned by Dr. G., but also from the healthy parts being inoculated by the knife used in the operation. Dr. Brickell of Savannah, many years since, gave a caution on this subject, and it has since been urged by Mr. Gilman in England. Where excision is practicable, it ought to be attempted, but where not possible, the next best remedy is a long continued stream of water from the mouth of a tea kettle upon the wound, as proposed long since, by the late Dr. Haygarth of Chester, England. This remedy, as observed by Dr. Mease, would seem to be especially proper, inasmuch as the poison exists in a watery form, and would therefore be likely to be dissolved or washed out by such an application. The French Journals have, within a few years, recorded several cases of the efficacy of a wash of chlorine in water, and in cases of the wound having been made by a small pointed tooth, it would promise to be highly useful from its being more able to penetrate to the bottom of it, than simple water. In such cases it deserves a trial. The solution of the caustic vegetable alkali injected into the wound, will excite great inflammation, and destroy the surface completely: in ragged and extensive wounds, it will be very effectual. Internal remedies, intended to prevent the disease, by operating upon the whole system, it is certain cannot be relied on, and for this obvious reason, that it comes on in such irregular spaces of time after the insertion of the virus, that it would be impossible to keep the system under the influence of any medicine for so great an interval as has sometimes been observed, and without that influence being kept up,

no one can suppose that the preventive powers of a remedy can take effect. The medical publications have recorded many cases of the ineffectual use of even mercury, to a salivation long continued. In several instances, the virus has remained inactive for six, nine and twelve months, and in one unequivocal case from the bite of a cat, three years and four months elapsed, before it showed its fatal effects.* This is the longest well authenticated interval on record.

When the disease has actually appeared, it would seem that copious and early bleeding promises more advantage than any other remedy, and the American practitioners are strongly urged to take into consideration the propriety of using it.

The theoretical dogma of Boerhaave, who pronounced the disease "*Summe inflammatorius*," sanctioned for a long course of years, the depleting plan, but without the least success, even when carried to a great extent; but in the year 1811, Dr. Schoolbred of Calcutta, announced to the world his having cured a case, by bleeding at an early stage of the disease, under circumstances which produced fainting; and the same practice, joined to a salivation, was successfully adopted by Mr. Tymon of the same place. The reality, however, of these diseases, has been called in question, and it is a fact, that Dr. S. acknowledges he did not succeed in a second case; nevertheless, Mr. Wynne, of Shrewsbury, England, cured the disease by bleeding to fainting, while on the contrary, the practice failed in the hands of others;† but, notwithstanding these disappointments, we are warranted in recommending the remedy by the discovery of very marked congestion having been discovered in the vessels of the brain and spinal marrow, in a man who died of the disease.‡ It is to be regretted that these parts had not been examined in the numerous cases recorded previously. In the event of a determination to try bleeding, the practitioner should bear in mind, that the morbid action of the system soon subsides, and that if any good is to be expected from the remedy, it is essential to a chance of success, to apply it as early as possible, after the symptoms appear. In addition thereto, Dr. Mease recommends relieving the spinal and cerebral congestions by the use of the caustic, after the West India plan, which has been tried by Dr. Hartshorne, in the cure of tetanus.

The identity of the appearances upon dissection, in the spinal cord, in both diseases, gives us great hopes that the remedy will prove equally effectual in one as in the other.

* Med. Repos. N. York, vol. v. p. 298. It was communicated by Dr. Mease.

† Edinb. Med. and Surg. Jour. vol. x. p. 26. xi. p. 74. New Med. and Phys. Jour. vol. ix. p. 160.

‡ Lond. Medico-Chirurg. Jour. and Rev. Oct. 1817.

Opium has been repeatedly given in very large doses, without the least benefit.

This note cannot be concluded, without calling the attention of the American practitioner to the extraordinary fact of three fatal cases of hydrophobia having occurred from bites by dogs, which if actually mad at the time of inflicting the wound, were restored to health. One is an original communication to Dr. Mease, from the respectable Dr. Glover of Charleston, S. C. ;* the second is related by Mr. Hay, surgeon in the British East India Company's service ;† and the third is quoted by Dr. Bardsley of Manchester, England, from the works of the eminent Dr. Martin Lister.‡]

* Med. Recorder, vol. ii. p. 352.

† Edinb. Med. and Surg. Jour. April, 1817.

‡ De Morbis quibusdam Chronicis Histor. i.

CHAP. VIII.

NEURALGIA.

Literary History of this Affection—Its nosological Divisions—Neuralgia facialis, or Tic Douloureux—Its Seat and Symptoms—Prognosis—Diagnosis—Pathology—Treatment—By Narcotics—By surgical Operation.

NOTHING can be collected from the works of any of the ancient authors in physic, regarding that chronic painful affection of the nerves to which the appropriate term of neuralgia is now applied. The first intelligible description of such a complaint, under the title of *tic douloureux*, appeared in the year 1756, forming part of a Treatise on the Diseases of the Urethra, by M. André, surgeon, of Versailles. In 1766 appeared Dr. Fothergill's full and admirable paper on the subject,* which, though partially anticipated by the brief notice of the French author, is well entitled, from its various merits, to be considered as the *original* account of the disease. Since that period a variety of memoirs on neuralgia, and notices of neuralgic cases, have been given to the world in the different periodical journals. Among these an in-

* First published in the fifth volume of the Medical Observations and Enquiries. This disease is called trismus maxillaris, and trismus dolorificus, by Sauvages ; by Dr. Fothergill, dolor crucians faciei.

genious essay by Dr. Haighton deserves particularly to be mentioned.*

Nosologists have subdivided neuralgia into different species, corresponding with the nerves which are the seat of pain. The first, and infinitely the most common form of the disorder, is the neuralgia facialis,—the tic douloureux of the French authors. The second, in point of frequency, is the neuralgia pollicis. Cases are recorded also, in which the same painful affection existed in the nerves of the foot and mamma. They arise without any assignable cause, and are, in the strict sense of the term, *idiopathic* affections. There are, however, others of a very similar character, which can be traced to injury of a particular nerve. These may with propriety be classed under the title of symptomatic neuralgia.† For the pre-

* Medical Records and Researches, p. 19. 1798.

† [We admit, that this affection cannot be traced to any particular remote cause, and that in a great majority of cases, it seems to be idiopathic: nevertheless there are cases (perhaps a greater number than is imagined,) referable to local irritations, arising in some other parts. Neuralgia facialis, seems to be occasionally derived from some irritation arising in the stomach, whether from a vitiated state of the gastric juice, or any of the ingesta that might have become indigestible, it is not always possible to determine. We would presume, that a change in the gastric secretion is the principal, if not the only cause of this variety, from whatsoever cause such a change may have arisen. In a case which we ascribed to this cause, the benefits derived from repeated emetics was manifest, and probably would have succeeded in effecting a cure if the patient could have been induced to persevere in the use of the remedy.]

Another case that fell under our observation, and which had resisted all the ordinary means of treatment, was finally cured, by the extraction of three carious molares, which had excited the disease although no sensation of pain had been experienced in the parts primarily diseased. Epilepsy has sometimes proceeded from a similar cause, and has been eradicated by extraction of teeth or their worse than useless irritating remains, acting on the exquisite sensibility of the nerves, as extraneous bodies. P.]

sent I confine my attention to the symptoms, pathology, and treatment of that singular disease to which public attention is now so strongly directed—the *neuralgia facialis*.

This affection has its seat in one or more of those branches of the fifth and seventh pair of nerves which ramify upon the face. The nerve most frequently affected is the portia dura of the seventh : next to this comes the second branch of the fifth, then the first of the fifth, and the least frequent of all is the maxillary neuralgia, in which the third of the fifth is primarily implicated. The pain is of a peculiar kind, shooting in a direction which corresponds perfectly with the course and communications of the affected nerve. It will almost always be found to *originate* in a single nerve, from the point at which it issues from its bony canal. From this as from a common centre it spreads, until in the progress of the disease it comes to affect every nerve of the face.

In neuralgia the pain is, in the first instance at least, confined to one side of the face ; it occurs always in paroxysms which lengthen and recur more frequently in proportion to the duration of the complaint. It is often excited to an extreme degree of violence by the least exertion of the body, by speaking, the slightest touch, or even a breath of wind. When the affection is fully formed, the pain of it appears to exceed any other variety of human suffering. It occurs with equal severity by day and by night. It is attended with convulsive twitchings of the muscles of the face, which afford a striking feature of the disease, and often impress upon the observer a sense of the acuteness of that pain which the patient experiences.

The natural tendency of the disorder is to rivet itself in the habit, and to terminate only with the life of the patient. It has been known to last upwards of twenty

years, and though it renders life a miserable burden, yet has commonly but little influence in sapping its foundations.

The causes of the disease are involved in the deepest obscurity. Of its immediate exciting causes nothing whatever is known ; and of those which predispose to it, but little. It attacks both sexes, and apparently in an equal ratio. The robust and the delicate are equally its victims. It rarely originates under thirty years of age. There is reason to suspect that it is rather on the increase in this country ; but to what circumstance this can be attributed it is in vain to conjecture.

Neuralgia has been in a few cases mistaken for rheumatism of the face, toothache, intermittent head-ache, or abscess of the maxillary sinus. The diagnosis is not difficult when to the accurate examination of symptoms we add an inquiry into the origin and subsequent progress of the disorder. "The rapidity of its disappearance, the suddenness of its attack, its violence and its confinement to one spot are generally sufficient to distinguish it ; the fever, local swelling, and heat of rheumatism sufficiently distinguish it, as in neuralgia they are all absent. The toothache is distinguished by the pain of that affection being of a heating character ; and being stationary and confined to one spot ; the hemicrania is known by its being general over the head ; whereas in neuralgia it shoots along the affected nerve." It would be for the honour of medicine if we could with equal facility unfold its pathology.* Dr. Parry has thrown out the hint, that the

*[It is probable Dr. Parry's hypothesis will be verified by a more minute investigation. We imagine a great number of affections heretofore denominated nervous, will be found to be local fevers or inflammations. We think that coma, amaurosis, and convulsions, when they constitute a part of neuralgia, are consequences, and that the participation of the brain in such affections are usually to be attributed to the exten-

proximate cause is a chronic inflammation and thickening of the neurilema or vascular membranous envelope of the nerves. Other pathologists have conjectured that neuralgia consists mainly in some obscure affection of the brain. From having known the disease in one instance to terminate fatally by coma, and in another to be followed by amaurosis, I am inclined to look upon this as the correct view of the case, and as fully borne out by the results of experience. The affection has resisted the most vigorous efforts of art with a degree of obstinacy, which can be paralleled only by the want of success which so generally attends us in epilepsy, tetanus, and palsy.

The means hitherto devised for the relief of this disease consist in the employment of narcotics and nervines, local irritants, and the division of the affected nerve. Of the class of narcotics, the principal now in use are opium, conium, and belladonna. Opium constitutes, in fact, the only *effectual* means of relief which we have it in our power to afford. Cicuta was originally recommended by Dr. Fothergill, but his high encomiums have unfortu-

sion of fever or inflammation, or to sympathy between the nerve and the brain. If the brain were primarily in fault, we judge there would often be observed more indications of disturbed functions, than can be perceived, during the first stage of the disease. Would not the pulse, tongue, stomach, or condition of the intestinal canal, express some indications of molested sensorial harmony? If the disease were exclusively nervous we can but conclude that stimulants and tonics would have been followed by a more fortunate issue. If the disease should be found to originate in the brain, it is likely it will be more effectually treated by some of the antiphlogistic means. In our enquiries into the pathology of this affection, its etiology must be ascertained, (if possible,) or we will continue to treat it at random; because, it would seem to be both idiopathic and symptomatic. We think the difficulty in the treatment, arises not from the want of suitable medicine, but the obscurity of our views, in relation to the causes and the precise effects they occasion. P.]

nately not been supported by the results of later experience. Belladonna, in the hands of some practitioners, has been productive of occasional advantage.* If a trial of this remedy should be advised, the greatest caution is necessary in the administration of it, so peculiar and so rapid are its effects upon the nervous system. 'It produces vertigo, numbness, impaired vision, tightness of the chest, dryness of the throat, and suffocation, all of which disappear on leaving off the medicine.†

Among the nervines which have acquired a character for the relief of neuralgia, may be mentioned bark, arsenic, and iron. The local irritants which have chiefly been employed are leeches and blisters, embrocations with the cerussa acetata,‡ issues,§ and electricity. In the case of a young woman who came under my care some years ago, having many of the symptoms of neuralgia, decided

* Eberle's Mat. Med. vol. ii. p. 57.

† Thomas.

‡ [An ointment of the sugar of lead was applied by Sir Astley Cooper to the face of a man suffering under this disease; the pain gradually abated, and in a short time was quite well.

It is also used in the French hospitals in the following form: Neuralgic Ointment. (Charité.)

Lard, ℥ii.

Opium, ʒi.

Ceruse, ʒi.

§ [An issue directly over the seat of the pain in the course of the infraorbital nerve, has cured the disease in the practice of M. Andral.

Mercury has also been successful when pushed to salivation: Pills composed of the extract of henbane and the oxide of zinc; an issue in the neck, freedom from business and care, with a residence in the country, have also succeeded.

In the experience of Dr. Baillie, this disease is never cured; it may however be suspended for a few months; the Peruvian bark and arsenic he relied on most for this purpose. Dividing the nerve, he says, has prevented a return of it for a few years: This is no doubt the most effectual remedy, when the disease is confined to the nerve alone and when it is a constitutional affection, of course it is no use.]

benefit was obtained by the application of leeches, a blister, and the free employment of purgative medicines. The affection under which she laboured is not uncommon; and I particularly allude to it here, having reason to believe that it is sometimes mistaken for *genuine* idiopathic neuralgia. From this, however, it differs in the circumstance of its occurring at an earlier period of life. I have observed it only in young women; and I believe it to depend, chiefly, if not entirely, upon a disordered condition either of the stomach or bowels. The carbonate of iron, in full doses, ℥ii. to ʒi. has in many cases proved decidedly efficacious; and when we reflect how much of the pathology of the disease rests upon *irritability* and *debility* of the frame generally, we may account satisfactorily for the result.*

The idea of dividing the affected nerve first occurred to the French surgeons in 1766; but was not generally adopted until the result of Dr. Haighton's experiment, in 1788, became known. In that case the operation proved completely successful; but subsequent experience has greatly diminished the hopes that were entertained of the

* [Dr. Parry, acting under the influence of his theory, that it depends on an increased action of the blood vessels of the brain, has tried bleeding, both general and local, purging, and in one case which did not yield easily, opium and calomel were used at the same time: His views he thinks are confirmed by the fact, that pain, giddiness in the head, confusion or uneasiness always attend the access of the fit. Like all other theorists, he of course cured the disease as successfully as he could wish.

The use of emetics has been praised by Mr. Abernethy: they have also succeeded with Dr. Physick: They also cure neuralgic pains of the head, which are seated in the scalp: In these cases Dr. Chapman bears testimony to their efficacy: Dr. Mitchell also states that he has cured these pains by tying the branch of the temporal artery which goes to the parts in which they are seated, following the practice originally proposed by Dr. Mott. of New York.]

probable benefits of such a measure. It has even appeared in some late instances to add to the sufferings of the patient. The excision of a portion of the nerve has been practised in a few cases without any corresponding advantage.

For the present, therefore, we can do little more than palliate the symptoms. The discoverer of a medicine worthy of general confidence will have a strong claim upon the gratitude of mankind.

I have too little experience in the other varieties of idiopathic neuralgia, to enter upon their consideration with any prospect of utility to the student; and authors are almost silent on this neglected portion of pathology. A paper by Mr. John Pearson, in the eighth volume of the *Medico-Chirurgical Transactions*,* gives a detailed account of a painful affection of the extremity of the left thumb, of a decidedly neuralgic character. After resisting a variety of plans of treatment, it ultimately yielded under the use of a liniment, which produced a high degree of irritation in the skin of the arm.

To this paper are annexed some useful reflections on the nature and management of those cases of symptomatic, or local neuralgia, which are the consequences of injury to a nerve; but on a subject which is strictly within the province of the surgeon, the general design of this work relieves me from the necessity of offering any observations.†

* Page 252.

† The reader who may wish for some further information on the subject, may consult with advantage Mr. Swan's "*Dissertation on the Treatment of morbid local Affections of Nerves.*" London, 1820. Cap. iv. and v.

CLASS II.

CHRONIC DISEASES OF THE THORAX.

CHAP. I.

BRONCHOCELE.

Nature of the Affection—Symptoms and Progress of the Disease—Speculations concerning its Cause—Treatment—By Medicine—By surgical Operation.

BRONCHOCELE, or the goitres, is a chronic indolent enlargement of the thyroid gland, occasioning swelling of the fore part of the neck, often to such an extent as to produce great deformity. The tumour, however, is quite free from pain, and does not appear to give rise to any degree of constitutional disturbance. There is no malignity in the disease, nor is there any disposition in the tumour, except from accidental circumstances, to take on inflammatory action.

The precise nature of the swelling which constitutes bronchocele has been a frequent object of investigation. When a section is made of a thyroid gland affected by this disease, it is found to consist of a congeries of cells containing a transparent viscid fluid.* The size of these

* Vide Baillie's Morbid Anatomy, fifth Edition, page 91.

cells is different in different cases ; although, to external appearance, the tumour in all exhibits the same character. It varies even in different parts of the same gland. Some of these cells are sufficiently large to contain a pea ; but the generality are of a size somewhat smaller than this. Reasoning from the change of structure thus observed, Dr. Baillie throws out a conjecture that bronchocele may depend upon an increased and vitiated secretion from the gland, which gradually distends the cells, and forms the swelling which characterizes the disease.

Doubts, indeed, have been entertained, whether all cases of bronchocele are essentially of the same nature ; in other words, whether there are not different *species* of this disorder. It has been attempted to establish distinctions between the sanguineous and the sarcomatous, between the common and the scrofulous bronchocele ; but these are probably of no real importance. Of this at least we may be confident, that if any essential differences do exist in the morbid changes of structure which the gland undergoes, the appearances presented on dissection are not sufficiently uniform to warrant us in characterizing them with precision.

There are, it is true, some slighter variations in the affection, which have always been acknowledged. The tumour varies very much, for instance, in point of consistence. It is sometimes hard and unyielding ; at other times, soft, and spongy. In some cases, the whole body of the gland is involved in the disease, while in others the swelling is partial, (‘ with watery and membranous cavities dispersed through it ; with particles of bone through it ; with large collections of matter in one case opening into the trachea ;* or on their discharge externally, curing the disease ;’) affecting one lobe of the gland only, or portions of it, so as

* Baillie’s Engravings, p. 27.

to occasion tumours that project irregularly over the anterior part of the neck.

In all cases of bronchocele there are grounds for believing, that an unusual determination of blood to the gland takes place. There is very often a sensible throbbing of the tumour during life. After death, too, the blood-vessels connected with the gland, both arteries and veins, are found enlarged, and this enlargement is made particularly apparent by injecting them.

The size which the tumour acquires after a lapse of years is often enormous, and its mere weight produces no inconsiderable inconvenience. The adjacent cellular membrane and lymphatic glands in process of time participate in the disease, and the whole neck becomes enlarged. It is rather a matter of astonishment that this should exist without prejudice to the life or general health of the patient, than that it should occasionally give rise to alarming symptoms, and be the immediate cause of death. The tumour itself becomes in some instances painful, the veins of the neck enlarge, there are hoarseness and headache, 'excessive difficulty of deglutition and respiration,' and that long train of evils is felt which inevitably results from obstructed respiration.*

* [Goitre is distinguished from aneurism of the carotid, by its insensibility, softness, mobility, and its corresponding rise and fall with the motions of the larynx and trachea, in swallowing. When old and very large, however, it becomes so united with the cellular texture, that the motion of the trachea cannot be perceived. When it is large and confined to one side of the neck, and its vessels are varicose, the pulsation then communicated to the tumour by the artery produces great resemblance to an aneurism of the carotid, and prevents it from being distinguished from it. Raising up the tumour is the best mode of effecting this object; the carotid will be felt beating under it.†

A dilatation of the jugular vein can be distinguished from goitre by

† Phil. Journal. Essay on Goitre, vol. i. p. 51.

The causes of bronchocele being involved in great obscurity have given rise to much discussion among medical men. It has usually been the object of authors to discover some one cause to which every case of bronchocele may be traced; but it is, I think, very questionable how far such an expectation is well founded. It is one certainly not warranted by pathological analogies. Like swelling of the liver or spleen, bronchocele may possibly have many causes, differing essentially from each other. For practical purposes at least, all that it appears necessary to inquire into is, under what circumstances bronchocele shows itself. We may thence deduce some conjectures as to the actual causes of the complaint.

1. Bronchocele is rarely, if ever, observed in children. Before the ninth year, it is stated to be almost unknown. It commonly makes its first appearance about the period of puberty; and this circumstance would lead to a conjecture that the disease may, to a certain degree, be connected with the change in the whole system observable at that period. The alteration of the voice is a decisive

the appearance of the swelling of the dilated vein just above the sternum; by its softness, compressibility, and disappearance on pressure, and its return when the pressure is removed, attended with a greater or less degree of swelling along the course of the vein when the pressure is removed.*

Goitre is distinguished from enlarged scrofulous glands by no symptoms of scrofula appearing in other parts of the body, when the disease is goitre; by its removal by change of climate, whereas scrofulous swellings are wholly unaffected by it: scrofulous tumours are painful to the touch, goitre is not: they are also harder, and more liable to suppurate; sometimes, however, the extent of the gland, which passes under the sternomastoid muscle, induces the supposition that it is enlarged;† and an encysted tumour occupying the situation of the thyroid gland may be mistaken for goitre. The place of its origin from below the sternum in one instance determined its character.‡]

* Phil. Journal, vol. i. p. 54.

† Ibid.

‡ Ibid. p. 55.

proof that at least the parts in the neighbourhood of the thyroid gland then undergo some peculiar and unexplained change. As life advances bronchocele becomes more and more common; and in districts where it prevails extensively, few persons reach to an advanced age without experiencing it in a greater or less degree.

2. Bronchocele chiefly occurs in persons of relaxed constitutions, and in such as have fair and delicate skins. Hence it is that women are the subjects of this disease so much more commonly than men. In the same manner we explain why bronchocele is so often found to accompany scrofula. By many it has even been considered as one of the evidences of a scrofulous habit. Bronchocele has long been known to prevail in particular families, and its title to be ranked as an hereditary complaint is unquestionable. It has been remarked, that where the family predisposition is very strong, the first attack of the disease occurs at a proportionably early period of life.

3. Bronchocele, though not absolutely unknown in any part of the world, yet occurs in some with such extraordinary frequency as to have been considered the great *endemic* of particular districts. In valleys enclosed by lofty mountains, and in which the reflected as well as the direct rays of the sun occasioned very dense fogs to be raised, this disorder more especially abounds. Hence it is so common in all the valleys of Switzerland; and, generally speaking, is so much more abundant in mountainous than in level countries. That its prevalence in these situations is not, as was once supposed, attributable to the use of snow-water, nor to a poor unwholesome diet, is the concurrent testimony of all observers.* It prevails

* It is also proved to be owing to something in these vallies from the effect produced by a removal to the tops of the mountains.†

† Acct. of Cretinism, Ed. Journal, vol. v. p. 33.

in every part of the world, in the hottest as well as the coldest regions, and in every class of persons. It is common in Sumatra, and many other climates, where snow is never seen ; while in Greenland and Lapland, where the inhabitants use snow-water almost exclusively, bronchocele is hardly known. In America it chiefly prevails where the lands are covered with wood.* In proportion as the country is cultivated, and the lands cleared, it is found to decline. Goitres have been observed in places particularly open to the influence of southerly winds, in the neighbourhood of rivers and lakes, and generally, wherever much moisture prevails. It certainly appears most commonly among those who are exposed unguardedly to the influence of the weather. All these circumstances tend to point out an important connexion between bronchocele and some peculiarity in the climate. What this is, it would be impossible accurately to specify ; but apparently it is *humidity*. There may, perhaps, be some morbid exhalations from damp soils which give rise to bronchocele ; but our ignorance of the nature and uses of the thyroid gland, joined to the obscurity which always attaches to reasonings on the origin of a disease, will probably for ever preclude our arriving at any degree of certainty in these speculations.

The very extensive prevalence of this unsightly disorder is a sufficient proof how little is known concerning the principles of its treatment ; or rather, how completely it is beyond the control of medical art. Every plan which ingenuity could suggest, or caprice devise, has been tried, and tried in vain. It is still abundant in all countries ; and, as Dr. Somerville has observed, the families of medical men are not exempt from it. All practitioners, however,

* This is amply confirmed by some facts detailed in a paper by Dr. Mease, in the Medical Recorder, vol. i.

have agreed in this, that to entertain any sanguine hopes of curing bronchocele, the treatment must be entered upon while it is still in an incipient state. When the morbid structure of the gland has been thoroughly established, our chance of removing it, even by surgical operation, is extremely precarious.

The cure of bronchocele has been attempted in two ways, by constitutional and local measures; and the following are the most approved of the methods which are admitted in modern practice.

1. The internal administration of burnt sponge has found many warm supporters, and the instances of success from this remedy are so numerous, as might at first incline the student to believe that the object of his research is found.* No doubt can exist that this medicine has cured many cases; but it would be much easier to show those in which it totally fails of imparting even the smallest relief. It is stated, that it proves most effectual when given in the form of electuary and lozenge, and allowed to dissolve slowly in the mouth. Its use should be continued at least four or five weeks before any opinion is given as to the probability of ultimate benefit from it. The mode of its operation is not all known. By some the virtues of the remedy are made to reside in the alkali which it contains; others attribute every thing to the charcoal; and later theorists would persuade us that iodine is its active principle. These speculations have led to the introduction of different preparations containing iodine, as medicines likely to prove advantageous in the treatment of this disease; but how far they may be administered with *safety* to the patient, and with what real prospect of success,

* [Consult the papers on the use of burnt sponge in bronchocele, in vols. iv. v. and xi. of the London Medical and Physical Journal, by Mr. Ring.]

the observations of authors are as yet too scanty to enable me to judge.*

2. Some benefit has been derived in bronchocele from the use of deobstruent medicines, more particularly the liquor potassæ, and the carbonate of soda, in conjunction with small doses of calomel, and such gentle aperients as may regulate the functions of the bowels without weakening the system by too great evacuation. Rhubarb and the neutral salts, in small doses, are recommended for this purpose. ‘The use of the sulphate of potash, so as to produce active catharsis, has succeeded, in the practice of Fodere.’ Dr. Gibson, of Baltimore, speaks in very strong terms of the value of the extr. conii. He states,

* [As soon as any untoward symptoms are evident, the medicine must be omitted. Copious mucilaginous drinks, the tepid bath, and vigorous regimen are advantageous. It has been used with great success in goitre, and where the internal administration is dreaded, it may be applied in the form of ointment to the throat. It has succeeded in lessening other tumours; its most remarkable property is its power of increasing the action of the absorbents.

The use of the iodine, the element of the burnt sponge, it is now ascertained, must be conducted with caution.

Tincture of Iodine.

R. Iodine, pulv. gr. xlviij.

Alcohol, ℥i.

Dose 20 to 25 drops to an adult, thrice a day.

Pills of iodine are made by forming one grain of iodine into two pills, one is to be taken morning and evening.

Iodine ointment is made by rubbing up a dram of pure iodine with an ounce of lard or half a dram of the hydriodate of potass with an ounce and an half of lard: the former in the quantity of a scruple, the latter in about the size of a filbert, are rubbed on the part.

Solution of hydriodate of potass, is made by dissolving 36 grs. of the hydriodate in an ounce of water, and given in the same dose as the tincture.]†

† Med. Recorder, vol. vi. p. 693.

that when well prepared and diligently persisted in, it seldom fails to afford relief under favourable circumstances—that is, where the patient is not above twenty years of age, where the tumour is spongy, where the disease has not existed long, and where it occurs sporadically.

3. The application of leeches to the throat has been found useful, but to produce any decided effect upon the complaint they must be frequently repeated.

4. Frictions with mercurial ointment and camphor, or with the soap liniment, may be tried with some prospect of advantage, as calculated to excite the action of the absorbents. ‘They have succeeded in the practice of Underwood. Salivation sometimes cures it.’ With the same view repeated blisters in the manner recommended by Mr. Benjamin Bell may possibly be serviceable. Simple pressure upon the gland appears to contribute, in no inconsiderable degree, to the dispersion of the tumour.* It is well ascertained, that the constant use of a neckcloth has sometimes checked the progress of the disease when early resorted to; and to the want of such support I have heard Italian physicians ascribe the greater frequency of the complaint among females.†

5. It is a well-established fact, that a simple change of residence from the valley where the goiterous person first received the disease, to a different district, or even to a higher spot on the side of the mountain, has in ma-

* [In the London Medical Repository, vol. viii. p. 288, will be found an interesting case of goitre cured by steady pressure; it occurred in the practice of Mr. Holbrook, of Monmouth. Dr. Baillie states that he has seen pressure on the trachea and œsophagus cure this disease. Burnt sponge, soda and mercury used externally, as a plaster, or as an ointment, he has found to be most serviceable.]

† [Boyer recommends bags of emollient herbs, to be worn about the neck for weeks and months, applied directly to the tumour.]

ny instances diminished the size of the tumour, and occasionally removed it entirely. ' Sometimes it disappears suddenly and spontaneously. Alibert relates a case in which a goitre disappeared rapidly, on an attack of melancholy.'

6. When the tumour becomes so large as to produce great deformity, or to endanger suffocation; or when, at an earlier period of its growth, the methods now proposed prove ineffectual, the aid of surgery has been in some cases called in, and relief has been attempted by an operation. Three surgical plans of treatment have been advised.

The first is extirpation of the thyroid gland; an extremely formidable and hazardous operation, of which I know but one successful case on record.

The second is tying the superior thyroideal arteries. A case in which this was tried, and which, for a time at least, proved successful, is to be found in the *Medico-Chirurgical Transactions*.* The operation was performed by Mr. Coates in the Salisbury Infirmary, on a young woman seventeen years of age. The artery of the left side only was tied, and in a short time the size of the tumour was reduced one half.

The third plan of surgical treatment recommended in this disease is the insertion of a seton into the body of the gland. Several cases of partial, and one or two of complete relief from this remedy, have been lately brought under the notice of the profession;† but it is very doubtful whether the measure is entitled to that share of praise which was at first given to it. In some cases in which the seton was tried, it occasioned a high degree of irri-

* Volume x. p. 312.

† *Medico-Chirurgical Transactions*, vol. x. p. 16. Paper by Dr. Quadri, communicated by Dr. Somerville.

tation about the throat, which rendered its immediate removal indispensable.

Upon the whole, we are led to conclude, that though the means of relief in the hands of the physician are far from possessing any general or very decided efficacy, they are nevertheless to be preferred to those severe and more doubtful ones which surgery has hitherto afforded.

CHAP. II.

DYSPNŒA AND ASTHMA.

Nosological Difficulties connected with disordered Respiration—Of Dyspnœa as a Symptom of Disease—Its several Causes—Dyspnœa permanent and spasmodic—Asthma—How characterized—Phænomena of the Asthmatic Paroxysm—Progress of the Disease—Predisposition—Exciting Causes—Pathology—Treatment—during the Paroxysm—in the Interval—Influence of Nauseants—Acids—Narcotics—Antispasmodics—Laxatives—Tonics—Diet and Regimen.

MUCH labour has been bestowed by nosologists in classifying the different kinds of disease which derive their chief character from disordered respiration ; but to so little purpose, that the language of medical men, in regard to them, is even at present hardly more accurate than that of the world in general. The difficulties lie in the very nature of the subject ; which is so extensive, so complicated, and so obscure, as not to admit of that precise elucidation which is indispensable in artificial arrangements. The function of respiration is of such importance in the animal œconomy, and the organs subservient to it (membranes, blood-vessels, nerves, muscles,

glands) are so numerous and so varicously connected, that it is hardly possible for disease to exist without implicating it more or less. Accordingly, *difficult breathing* will be found to be one of the most frequent *symptoms* met with in practice; and those who have ever experienced a fit of illness will acknowledge it as one which presses upon the patient more heavily than perhaps any other.

The *pathological* considerations connected with dyspnœa as a *symptom of disease* are of the highest importance; and they demand, from the practical physician, the fullest investigation which the state of the science permits. In the course of the present chapter I shall be led to touch upon most of those interesting topics of general inquiry which this branch of the study of physic involves; but a complete discussion of them would far exceed the limits to which I have here confined myself.

The first questions of the student will naturally be, what are the immediate causes of difficult respiration, and which of them are the most frequently met with? A reply to these inquiries will lead to a knowledge of the most important *practical* divisions which have been made among the cases of disordered respiration.

1. Difficulty of breathing, in the first place, is a symptom of *general fever*. The increased velocity with which the blood, during fever, passes through the great vessels of the lungs, disturbs their functions, and the natural consequence is dyspnœa. 2. It occurs as a symptom of the early stage of inflammation in the *mucous* membrane of the lungs and air-passages, and is therefore a *leading* feature in laryngitis, croup, severe catarrh, and the several modifications of bronchitis. It is attributable here to the *loaded* or congestive state of vessels in the affected membrane. 3. Difficult respiration is a symptom of inflammation in the serous membrane of the thorax; probably, because by the free expansion of the lungs the pleura is

placed upon the stretch. 4. It is equally the result of deposition in the parenchymatous substance of the lungs, and is hence the most important of the early symptoms of tubercular phthisis.

After this enumeration of only a few of the sources of difficult breathing, it cannot surprise us that it should be so common a symptom of acute diseases. We may now observe the same effect resulting from causes of a more chronic kind.

5. Præternatural secretion from the glands of the bronchia, or from their secreting mucous surface, is sometimes habitual, and sometimes the result of accidental inflammation. In either case, it creates dyspnœa, which is felt most oppressively in the morning, and is only relieved by the labour of long coughing. 6. Permanent dyspnœa is the natural consequence of malformation of the thoracic parietes. 7. It is a common attendant on hydrothorax, organic diseases of the heart, aneurism of the aorta, and other mechanical impediments to the free expansion of the lungs. 8. In certain cases dyspnœa is believed by many pathologists to arise from a much less obvious cause, *viz.* some irregular spasmodic action of the muscles concerned in the function of respiration. This we shall hereafter see to have given occasion to much controversy. A strong argument, however, in favour of the reality of such a cause of dyspnœa may be found in the circumstance of its being traced, 9thly, to the existence of disease within the head. A peculiar modification of difficult breathing is, as I have already stated, a distinguishing feature of apoplexy. It is presumable, that in this case dyspnœa is owing to impaired function of the *par vagum*. Lastly, dyspnœa has its origin, in a large proportion of cases, from disturbance in the functions of the abdominal viscera. Sometimes, as in the case of flatulency or swelled liver, this may be imputed to the mechanical obstruction there-

by offered to the descent of the *diaphragm*. In other instances, as in that of worms, the difficulty of breathing is referable only to the principle of nervous sympathy,—an explanation which is not to be discarded because less intelligible than some which have preceded it.

This brief and very important sketch of the various causes of dyspnœa will probably be received as sufficient evidence of the obscurity in which the subject is enveloped. It results from it, 1. that difficult breathing is equally to be met with in acute and chronic diseases; 2. that it arises, partly from causes existing within, and partly from such as are exterior to the thorax; 3. that it admits of a division into the two great classes of *permanent* and *spasmodic*. Upon this latter distinction much stress has always been laid by nosologists. They have generally agreed in restricting the term *dyspnœa* to the cases of permanent difficulty of breathing, while to the spasmodic or recurrent varieties of disordered respiration, they apply the generic term *asthma*. In this sense, which may fairly be considered as the correct one, dyspnœa can only be viewed as a symptom, and as such cannot properly be treated of in this place. The case is different, however, with regard to *spasmodic asthma*. This affection of the breathing has long been regarded as *idiopathic*, and to the title it has unquestionable claims.

ASTHMA was well described by the Greek and Roman authors, and has always been a favourite topic of speculation among medical writers. The latest and by far the most complete account of the disease which has ever appeared is that of Dr. Bree,* to which I am chiefly indebted

* Practical Inquiry into disordered Respiration, by Robert Bree, M. D. 5th Edition. London. 1815.

for the following outline of its symptoms, causes, and method of cure.*

There is often some degree of warning given of the approach of an asthmatic paroxysm,† not by thoracic symptoms, but by those of indigestion, heartburn, flatus, itching of the skin, ‘particularly of the breast and neck,’ pain over the eyes, and sleepiness.‡ The attack most com-

* [There are three distinct varieties of this disease, which deserve the attention of the practitioner: these are, 1st, The spasmodic or convulsive asthma; § 2d, The dry asthma; 3d, The asthma which is occasioned by irritation in the abdominal viscera.

The spasmodic or convulsive asthma, the most common variety, attacks all temperaments, but more particularly the melancholic, or that between the melancholic and sanguine.]

† [We touch this subject with a trembling hand, because we can subscribe to very few of the opinions that have been propagated, in attempting to account for the phenomena of *asthma*. None of them, separately or conjoined, are competent, either to satisfy the pathologist or explain the most common facts.

We judge the precursors noted in the text, are rather the conveyancers than the cause of the disease. Although a similar defective organization of the stomach, to that which predisposes to asthma in the lungs, may be found in the same individual, and the same general mobility of the nervous system may pervade the whole system, it is certain that the disturbance in the stomach is in most cases secondary. Asthmatics complain little or not at all of dyspeptic symptoms, till the paroxysms have been reiterated very frequently; and certainly the nervous connexion between the lungs and stomach, is sufficient to explain the interest the latter feels in asthma. We do not find asthmatics dying of dyspepsia, nor permanently harassed with dangerous affections of the principal organ of digestion, farther than they depend upon the state of the lungs. When by medicine, or change of climate, or accident, asthma has been cured, or even suspended for a considerable time, the affection of the stomach vanishes, and is forgot. P.]

‡ [If company prevent the sleepiness, shortness of breathing is felt, anxiety, restlessness, an irksome feeling, a sense of heat and tingling in the ears, neck and breast, stricture in breathing, and irritability of temper.|| These symptoms are certain evidences of its approach.]

§ The periodic flatulent of Floyer.

|| Bree, p. 55.

monly occurs at night, and the patient is perhaps waked out of his sleep by it.* To those who experience or witness a paroxysm of asthma for the first time, it appears one of the most formidable diseases to which man is liable. The patient is oppressed by a tightness across the breast, which so impedes respiration, as to threaten the immediate extinction of life.† He starts up into an erect

* The student will not fail to observe in this circumstance, an analogy between spasmodic asthma and epilepsy.

† [This symptom has been attributed to either "a spasmodic contraction of the bronchia, or muscles of the thorax;" but more modern pathologists have denominated it a convulsion. There must have been some cause to which those feelings are directly to be referred; and if we advert to the structure of the parts on which the causes of asthma necessarily act, we can but persuade ourselves, that an easier and safer solution of the difficulty may be found. A spasm is a continued contraction of the muscular fibre;—a convulsion, an alternate contraction and relaxation. The organization of the bronchia is diametrically opposed to the formation of spasm; and upon the strictest examination of the muscles of the thorax, there is no indication, much less evidence of either spasm or convulsion. The patient experiences no alleviation of dyspnœa by such intervals as would be the consequence of a temporary relaxation in convulsion, or of strong antispasmodics in spasmodic affections. If the bronchia were occupied by spasmodic stricture, the patient would often die from defect of vital air; and spasms of the muscles of the chest would express the usual excruciating pains of other muscles spasmodically contracted. Instead of those expressions, which would be inevitable, the whole distress is to be traced to the lungs, their immediate appendages, and in the circle of their sympathies. The disease has been contemplated with an eye too insulated to follow the train of causes and effects, by which all the phenomena are developed. The disease has been located in, and confined to, the nervous system; whereas it is easy to show, that it is only the predisposition that resides there, and that the blood-vessels of the lungs, depending upon the nerves for their constitution, are the principal agents in asthma. Whatsoever cause, hereditary or acquired, can effect such a change in the veins of the lungs as to weaken them, will be followed by a facility of distension and a consequent congestion, without which we think a paroxysm of asthma cannot be produced. All the causes conspire to

posture, and flies to the window for air. For a considerable time his breathing is performed by gasps, slowly and with a wheezing noise; speaking is difficult and even painful to him; there is often present also a propensity to coughing.

In this state of urgent distress the patient continues till the approach of morning, when a remission commonly takes place. However suddenly the fit began, it always goes off slowly. By degrees the breathing becomes less laborious, and coughing and speaking are performed with greater ease. In the generality of cases a copious expectoration of mucus* at length takes place, and with it the paroxysm ceases, and the patient falls asleep. During the fit the pulse and heat usually continue of the natural standard, the surface of the body is pale, the muscles appear shrunk, and there is a considerable flow of limpid urine.† In a few cases expectoration is very scanty. This, which in itself is an unimportant circumstance, was by the humoral pathologist advanced to a distinguished rank among the symptoms of the disease, and

show, that it is the interference of a distended condition of the veins with the air vessels, impeding free respiration, that is the proximate cause of asthma. Whether there be primarily any defect in the arterial system of the lungs, we cannot decide; but it appears to us, that all the difficulties experienced in respiration arise from the connexion between the congested lungs and the bronchia; and that the difficulty of using the muscles concerned in respiration arises from a deficiency of power in the lungs, which prevents them being expanded, without which none of the parts secondarily concerned can act. Respiration must begin in the lungs; and whatsoever becomes a cause of irritation, positively, or negatively by diminishing the usual portion of atmospheric air, disables the nerves, and leads to congestion. P.]

* [Sometimes blackish, at others sweet or saline, or slightly tinged with blood.]

† [The bowels are seldom regular; and, when they are so, they are generally too open. Sometimes they are too costive, a fit is the consequence, and a lax state of them for some time.]

made the groundwork of its division into the two species of *dry* and *humid* asthma.

During the next day the asthmatic experiences some remaining sense of stricture across the breast, and any exertion of the body increases his uneasiness. At night the urgent difficulty of breathing returns, and in this manner he is harassed for three or four successive days, the symptoms becoming each day milder; after which, the symptoms gradually yielding, he enjoys his usual rest without further disturbance. This terminates the paroxysm of asthma.

When it has once taken place, the disease is apt to recur periodically, and when the asthmatic disposition is very strong, to be brought on at all times by some of the circumstances which I shall presently enumerate. I have previously to observe, that a degree of difficulty of breathing, particularly on ascending a hill or flight of steps, is never wanting during the intervals, and respiration is always attended more or less with *wheezing*; that is, with a morbid accumulation of mucus in the bronchial tubes. Persons subject to asthma acquire a peculiar expression of countenance easily recognized when once observed.

The consideration of the exciting causes of the asthmatic paroxysm constitutes the most important feature in the pathology of the disease. It may be preceded by a short notice of what little is known regarding predisposition. Asthma has some title to rank as an hereditary complaint; it is not confined to any particular age or sex; the period of youth and manhood is the most prone to it. It is sometimes connected with a deformed state of the chest. The asthmatic disposition commonly exists along with other marks of an *irritable* habit of body.* This

* [This general principle, says the text, "pervades the whole pathology of asthma." We apprehend, that this irritability, which seems to be constitutional, is more probably the consequence of that morbid irrita-

general principle pervades the whole pathology of asthma. It will be obvious in the strong tendency to dyspepsia which all asthmatics have; in the slightness of the cause which often induces a fit; in the great facility, lastly, with which the asthmatic convulsion, when once excited, runs into excess, and rivets itself in the constitution, recurring at last by the mere force of habit.

In ordinary cases, the exciting causes of the paroxysm are sufficiently perceptible, and they exhibit the most singular varieties. Dr. Bree considers them as qualified by their importance to become the basis of a practical division of asthmatic cases, and he refuses to acknowledge any differences in the *phænomena* of the asthmatic paroxysm calculated to attain this object. From this we may learn to estimate the claims upon our attention which the *exciting causes* of asthma possess.

1. In the predisposed, an asthmatic paroxysm is frequently the result of particular states of the atmosphere, varying however in different cases. One man finds his breathing easy in the most crowded and smoky parts of London, and has a fit the moment he returns into the pure dry air of the country. Some asthmatics can go with impunity into a hot and crowded room, which others would shun as the sure prelude to a paroxysm. Some have their fits in summer, and others dread the approach of cold weather. An asthmatic is a perfect barometer. In a close room he knows when the weather changes, and confidently pronounces the wind in the east.*

bility of the lungs, and that it is thence communicated to the bronchia and other parts sympathetically. That the disease is easily excited by slight causes is admitted, but the predisposition is increased in the ratio of the repetition of paroxysms and in proportion to the increased sympathies radiated from the lungs. All the exciting causes of asthma tend to the same point, they all favour a preternatural plethora of the veins. P.]

* [Cold and moisture often produce this disease; thus the wind blow-

2. Various sorts of irritating matters conveyed to the lungs by the air, and occasioning, under common circumstances, a fit of sneezing, will, in those predisposed to asthma, bring on a paroxysm. Dust, perfumes, tobacco smoke, metallic fumes, and the vapours of sulphur, have had this effect in many cases.

3. Asthma is often occasioned by whatever quickens the motion of the blood generally, or determines it particularly to the lungs; such as severe exercise, loud speaking, exposure to cold, and suppressed evacuations, as that of the piles, the menses, repelled eruptions, or gout.

4. A very frequent and important cause of the asthmatic paroxysm is a loaded, weakened, or otherwise disordered state of the stomach and bowels. This cannot surprise us when we reflect how generally dyspeptic persons, having no asthmatic diathesis, complain of difficult breathing, especially in the horizontal posture. The principle is of extensive application in the treatment of asthmatic affections.

5. Asthma is occasionally induced by causes which cannot be supposed to operate but through the medium of the nervous system generally. Of this kind are vehement emotions and passions of the mind, or the exertion of deep thought.

6. I have already had occasion to allude to the great law of convulsive motion, *viz.* that, whatever be its origin, the certain consequence of its repeated attacks will be that increased *mobility* of the whole frame which occa-

ing over the sea from the east in the United States, is unfavourable to the asthmatic: Purely cold and dry winds also affect them; as well as vicissitudes of rain and snow; active exercise in a hot and dry air also produces it: it therefore very frequently occurs in August; excessive evacuations, the want of food, and the neglect of regular meals, are also its exciting causes.*]

sions a renewal of the diseased actions by the mere force of *habit*. This principle is particularly applicable to asthma, which fixes itself in the constitution with an inveteracy equalled only by that of epilepsy. Yet with all this, asthma cannot be considered as a disease of danger. No instance is perhaps on record of a fatal event occurring during the paroxysm; and though it assuredly in some cases lays the foundation for other diseases, (hydrothorax, and perhaps aneurism of the aorta,) yet this can hardly be considered as a frequent consequence of it. Many confirmed asthmatics have accordingly attained a good old age. The gradual inroads however, which, when uncontrolled, it makes upon the constitution, embitter all the enjoyments of life, and should be sufficient to induce the patient to submit to any privations that may be necessary towards his cure.*

Pathologists in all ages have exerted their ingenuity in determining, if possible, the precise seat of the asthmatic convulsion, and its true nature or proximate cause. Much controversy has arisen on both these questions, and they are still involved in considerable obscurity. The bronchial tubes have usually been considered as the primary *seat* of asthma; but a difficulty has been experi-

* [The diseases to which asthma claims affinity are, catarrh, which sometimes degenerates into it by the increased secretion of serum, or if a greater degree of action exist, it will take on the character of peripneumonia notha; if there be fever and the disease be protracted; if the action of the vessels be still increased, and if pus and not serum is secreted, it is phthisis and not asthma.]

It is also allied to dropsy. In hydrothorax, the serum is thrown into the sac of the pleura; in asthma, into the cells of the lungs: so nearly is it allied, that swelling of the legs was considered as a general sign of the approach of asthma by Sydenham.† It is disposed also to alternate with mania, and therefore has been considered as having affinity with it.]

† Bree, p. 38.

enced in reconciling the notion of spasmodic *contraction* with their peculiar anatomical structure, nor does this appear to have been hitherto overcome. In the exquisite form of the asthmatic paroxysm, every muscle that can assist in respiration is affected. The great question, however, upon which pathologists have divided, is, whether the spasmodic action existing in some one of the structures about the chest be the *cause* or the *consequence* of that superabundant mucus in the bronchial tubes, which all admit to constitute so material a part in the phænomena of the asthmatic paroxysm.* Dr. Cullen (with other Hoffmannians) contends, that it is the *cause*—that the spasm is the primary feature of the disease,

* [“The first link in the chain of causation,” seems to us, to be whatsoever can promote congestion in the lungs, and from them as a centre (in a state of fulness of the vessels,) irritate the nerves of the bronchia. The dependance of the arteries on the nerves is sufficient to excite the latter to increased secretion. It is moreover probable, that in many cases the bronchial vessels may be also congested. It seems to follow necessarily, that when any series of veins become congested, the corresponding arteries are thrown into increased action, and all mucus discharged is the effect of secretion, because it is changed from serum, and is possessed of all the properties incident to catarrhal and other similar secretions. The variety of names imposed upon the different modifications of asthma, seem to us to be not only superfluous but calculated to embarrass us in the pursuit of truth, which when found is simple. All admit that a free expectoration alleviates all the distresses of asthmatics, but how is this effected? Not by removing nervous sensibility simply, but by exonerating gradually the veins through arterial secretion. If there be little or no secretion, and the paroxysm disappear, it is only by such means as release the congested vessels. This may be effected by blood-letting, in high states of congestion, and in a weaker condition, stimulants will effect a similar change, though by a slower process, by giving tone to the nerves, and thence to the veins. The pathological rationale in asthma is as unique, as it is in pneumonia, catarrh and some other pulmonary and bronchial diseases, and we are no more justified in multiplying nosological distinctions in the first than in either of the others. P.]

and the effusion of mucus the natural relief of such diseased action. Dr. Bree, on the other hand, joins with the old humoral pathologists in maintaining that the convulsive efforts of the asthmatic are only *secondary* phænomena, being set up with the view of throwing off an excessive secretion from the mucous membrane of the bronchia; 'and it is from this secretion that, the diagnostic peculiarities of this disease, take their origin, viz. difficulty of breathing, cough, straitness and wheezing in respiration.'

Dr. Bree has undoubtedly argued the question with great ability, but the general laws applicable to secretion and convulsive action do not appear to me to bear him out in his conclusions; besides which, the occasional occurrence of asthma with little or no secretion from the lungs, the very frequent circumstance of excessive accumulation there without any spasmodic action excited to disengage it, the phænomena of hooping cough, and the analogy of both asthma and hooping cough to epilepsy, tend still further to impress upon my mind the belief, that the first link in the chain of phænomena is convulsive action.*

* [The true pathology of asthma, as of every other disease, is drawn from the contemplation of its phænomena. It appears from the dissection of Mr. Rostan that the phænomena of asthma always depend on a morbid alteration in the organs of respiration and circulation, producing an accumulation of blood in the lungs: as, thickening of the left ventricle of the heart; enlargement of its whole substance; ossification of its valves, and those of the aorta, the aorta contracted at its origin; thickening of the parietes of the aorta; in the lungs, adhesions between them and the pleura; effusion of serum into the cavity of the chest; the bronchia inflamed, and filled with mucus, the lungs converted into a substance, resembling liver. Corvisart, Baumes and Boyle believe with Mr. Rostan that the diseases of the heart and lungs have a much greater connexion with asthma, than has generally been thought.† Effusion

† Med. Recorder, vol. viii. p. 148.

It must be confessed that the question before us is one of a purely speculative nature. Though I have ventured therefore to differ from Dr. Bree in his pathological opinions, I am not the less satisfied as to the merits of his practical suggestions. Of these I now proceed to lay before the reader a short abstract.

[But before we proceed it may be proper to lay before the reader the characteristic signs of the other species of this disease.

OF THE DRY ASTHMA.

The species is distinguished by having no secretion from the lungs; particularly when it is but of a short duration; when it continues long, mucus is at last secreted, and it produces a wheezing; there is no discharge of limpid urine generally; and there is no disposition to the hydropic secretions; in this variety, the dyspepsia also is slight which accompanies the attack; it is distinguished more particularly by the dryness of the mucous membrane lining the trachea and nose; and it appears to be produced by subtle irritating particles exciting the surface of the lungs and trachea, at the same without producing the secretion of serum, which leads to the wheezing, stricture, &c. of the convulsive variety.]

of serum and mucus in all the cavities of the throat, are mentioned by Bree, as also into the air cells. Morgagni also states that the lungs was found pale, contracted, and hard, with sanious matter through it, and the heart diseased. Baillie found the lungs covered with vesicles, they did not collapse, and were filled with a mucous fluid. It is the effort of the lungs debilitated to convulsion by the presence of offending substances, and deranged structures which constitutes the paroxysm of asthma. Why it should be present in some cases, and not in all instances of these derangements is beyond our scrutiny; that they are often connected as cause and effect is certain; and that these secretions and organic lesions mainly produce them is also true, though something more may also be required.]

[THE ASTHMA OCCASIONED BY IRRITATION IN THE ABDOMINAL VISCERA.]

A paroxysm of asthma may proceed from excess in eating, from the presence of a gall stone, in the gall ducts, from bile, acidity and flatulence in the stomach, from ascarides, or round worms in the bowels, from irritation, and disease of the uterus.* Either of these causes have by sympathy produced a disposition in the diaphragm and abdominal muscles to throw off the offending substance, and thus nature in attempting to relieve herself, from weakness, aggravates the evil, by producing this terrible disease.]

The treatment of asthma naturally divides itself, like that of agues, into the two great heads of palliative and radical; or into that which is to be pursued during the fit, and in the interval. The relative importance of these was long misunderstood. Dr. Cullen distinctly says, that asthma is seldom cured, though it admits of alleviation. Dr. Bree, on the other hand, has shown that the paroxysm of asthma is susceptible of but little relief, and that the main object of medical treatment is to prevent the recurrence of fits, and thus to effect a *permanent* cure of the disease.

1. During the paroxysm the indications of cure are to lessen the distention of the blood-vessels of the lungs, and to promote expectoration. It might be supposed that the first object would at once be gained by the abstraction of blood, and the relief so commonly afforded by bleeding in most forms of thoracic disease gives countenance to such an expectation. But experience has shown that this evacuation scarcely ever shortens the paroxysm;†

* Bree, p. 156.

† [Both theory and practice are vehemently opposed to this doctrine. In strong subjects, in almost all young persons, in many old persons who

while on the other hand it delays expectoration, aggravates the subsequent dyspnœa, and increases that debility

have not experienced a very frequent repetition of paroxysms, blood-letting is not only the most effectual remedy, but in many, it is radical. We have frequently removed every asthmatic feeling before the removal of the ligature from the arm; and in all cases the judicious abstraction of blood is beneficial, until the vessels shall have been so often over-distended, that they cannot readily contract. The quantity drawn should be adapted to the exigency of the case. In early life, and in athletic subjects, with pressing symptoms, the orifice may be large, and the quantity according to the relief obtained. After the vessels have been repeatedly congested, the quantity should be smaller, and it should be drawn through a small orifice. The position respecting the pulse, which is so frequently laid down by writers, is far from being universal. The pulse is not always "perfectly natural." Perhaps it never is so. It is often preternaturally weak and even indistinct, whilst the pulmonary apparatus are greatly distended. Sometimes it is more frequent than in health. In many cases it is full and strong; and in all such examples, the lancet is our greatest remedy. The pulses cannot safely direct us, in common cases of asthma; for such is the embarrassed state of the lungs, that the heart is brought into concern, and it may be necessary to bleed, although the pulses may be feeble. The interest felt by the heart sometimes renders the pulses irregular. The diminution of oxygen in the lungs, renders the pulse deceitful, by lessening irritability, in certain cases of asthma. To those who are so timid in the use of the lancet, and so attached to the employment of stimulants, we would put the question, Why is it, that all persons who are reduced very low, viz. greatly emaciated from disease, or by any evacuation or any other cause, never fall into a fit of asthma, however liable they may have been to it, or however long it may have continued? One of our patients who had suffered under asthma for twenty years, and who had never passed two months without a paroxysm during that time, during a southern tour contracted a diarrhœa, which continued from November till March. One year elapsed before he recovered his usual weight, and during this time he experienced not one asthmatic feeling; but no sooner had he retrieved his loss, than the disease returned with all its pristine force and frequency. If this irritable state of which we hear so much were the sole cause of asthma, why does it not occur in those abject states of debility in which irritability is greater than at any other time of life? P.]

which is the great obstacle to a speedy and ultimate cure. In place of blood-letting we are to relax the spasm, and unload the vessels by the combined influence of nauseant expectorants, acids, and narcotics.*

Where the stomach is much loaded (as when the paroxysm occurs soon after a full meal,) we may begin by directing a gentle emetic.

R. pulv. ipecac. gr. xv.
Acet. Scill. ʒi.
Aq. Menth. sat. ʒi.
M. f. haust. emetic.

The value of the squill and the vinegar cannot be sufficiently estimated in asthma. The vomiting should never be violent; as if it be, it will protract the fit, and do great injury without the slightest benefit; it is particularly useful in the beginning of the fit.

Under common circumstances it will however be sufficient to keep up a nauseant effect by the following draught.

R. pulv. ipecac. gr. iii.
Acet. distillat. ʒiii.
Aq. Menth. puleg. ʒv.
M. f. haust.
Repeat every hour.

* [Bleeding must not be practised in the aged and the feeble; in the plethoric and robust it may be useful; in general, though it mitigates, it prolongs the paroxysm of the first species. The marks of fever must be decided, which in asthma they very seldom are, before blood can be taken with safety. In the dry asthma it is particularly useful. Sudorifics are proper in all the three varieties of asthma; they should have a gentle, not a violent operation. Something cordial or stimulating should also be given with them, as a bitter infusion or tincture, such as bark; an alkaline quality may be added, or an absorbent, as chalk, to remove acidity.† Antimonial wine with laudanum; Dover's powder; spiritus mindereri with opium and the foot bath, are valuable.]

† Bree, p. 178.

If there be suspicion of acidity in the stomach, the annexed draught may be substituted.

R. Cret. ppt. gr. x.
Pulv. ipecac. gr. iii.
Aq. Menth. 3x.
M. Repet. quaq. tert. hor.

Sir John Floyer's specific in the asthmatic paroxysm was the vinegar of squills, and it is certainly a valuable medicine.*

[Dr. W. P. C. Barton mentions in his vegetable materia medica of the United States, that thirty or forty grains of the *symplocarpus foetidus*, or skunk cabbage, has been found valuable in the paroxysm. It should be continued till the patient is entirely cured. The same author also notices the use of the *lobelia inflata*, in the same disease, quoting Drs. Thatcher, Stewart, and Cutler, as having tried it: it was taken in the dose of a tea-spoonful of the tincture made with brandy; ammoniac and asafœtida, are too heating, particularly the former. The oily demulcent and saccharine expectorants are improper because they derange the stomach.

The specific of Floyer above alluded to, is particularly valuable in the convulsive variety; especially in the first of the paroxysm, and thus in proportion as it is attended with some little nausea and diarrhœa. Its disposition to purge should however be carefully watched and prevented. Combined with henbane and nitric acid, its powers are brought out more decidedly than in any other

* Hand-bath of the Paris hospitals.
Mustard flour, ℥ii.
Water.

This bath is very useful in this and other pectoral diseases, where a determination to the breast is one of the symptoms.

way. In the third variety unless it vomits, it can be of no use.*

The *polygonum senega* is valuable in the convulsive asthma of old people; in that of the young it is too irritating. In the spring, the disease in the middle aged and the old, is disposed to take on the character of *peripneumonia notha*, then the *senega* is extremely useful: during the fever in these cases, united with the acetate of ammonia, and as it gives way with paregoric and the squill, the expectoration, urine and perspiration are all promoted in the most happy manner.†

The patient should be directed to take at intervals clear, 'and very strong' coffee, which as an article of diet is peculiarly well adapted to the stomach of an asthmatic.

[The inhalation of the steam of warm water from the spout of a tea-pot, or from Mudge's inhaler, has been found to be useful: A tea made of *columbo*, with a little ether added, will be serviceable, used in the same way.

Smoking tobacco, stramonium, or the leaves of *digitalis* have been recommended; they are no doubt useful for the time, by the narcotic influence they exert upon the system; the stramonium, however, has produced unpleasant effects, and is now generally abandoned: The inhalation of tar has been useful: The use of tobacco has, like opium, a debilitating effect upon the system, and should not be used.]

On the second or third day, when the tendency to secretion has increased, some anodyne may be added to the expectorant, and the effect of the whole is much aided by the gentle stimulus of an acid. The following formulæ are constructed upon these principles.

* Bree, p. 187.

Ibid. p. 188.

℞ Tinctur. Scill. gtt. x.
Acid. Nitric, gtt. vi.
Extract. hyoscyam. gr. iii.
Aq. pur. ℥iss.
M. f. haust. tert. hor. repetend.
℞ Mistur. Ammon. ℥vi.
Acet. Scill. 3i.
Tinct. Opii. gtt. vi.
Aq. Carui. ℥iii.
M. Capt. quaq. tert. hor.

[Expectorants are best adapted to the first or convulsive asthma; the above formula are valuable, because they combine a diuretic as well as an expectorant operation.

Diuretics in the first variety are not so valuable as expectorants. Any thing, however, which promotes the secretion and evacuation of urine, has from time immemorial been considered as extremely useful in this disease: Diuretics are particularly useful in the third variety, or that from abdominal irritation; and in particular, when dyspnœa remains after the fit, the urine is small in quantity and high coloured: The saline diuretics are then proper combined with mercurials; particularly if there be visceral obstructions.* The acetate of potash, ℥ss. every two hours through the day, with 8 or 10 grs. of calomel at night, will have a good effect. The carbonate of soda (8 grs.) taken at night is recommended by Bree as extremely useful, when the first passages are disordered, and the habit is sufficiently strong. The precaution of keeping the bowels gently open and not purged, must be always observed.

Dr. Ferriar praises the digitalis combined with small doses of opium, and its success is confirmed by Dr. Percival: In the hands of Bree it did not succeed so well. Dr. Sugrue, of Cork, found that it mitigated the violent symptoms, and improved the general health: it was given

* Bree, 181.

in the dose of fifteen drops of the tincture twice a day. I have seen the Fowler's solution in the dose of ten drops three times a day, combined with the same quantity of the digitalis relieve in the most decided manner paroxysms of asthma, which had resisted other remedies: In all cases where the urine is small in quantity and pale, the use of diuretics is valuable: The appearance of œdema in the feet is always a favourable sign in asthma. Galvanism has also been advised, and from the experience of Dr. Wilson Philip with success: It is applied in severe cases morning and evening, by placing a piece of metal on the pit of the stomach, and attaching to it one of the wires of the battery: a piece of metal is also placed on the side of the neck over the par vagum, and the other wire attached to it: the stream then passes through the two plates.]

In the management of this disease the student will bear in mind, that laxity of fibre, and morbid sensibility and irritability, are the predominant features of the asthmatic habit, and he will learn to avoid all violent medicines.

[The use of blisters has been advised, as also issues, setons; the former in the paroxysm are of very little use, and it is only when the disease proceeds from a repressed eruption or the healing up of an old sore, that any advantage can be expected from the use of setons or issues. Inoculation with the itch has cured the disease.

The prussic acid, Dr. Eberle tells us in his valuable work on the materia medica, has been found useful in asthma, by Dr. Oliver, and Dr. Granville. Its administration should be conducted with the greatest caution.

According to Dr. Jackson, and Dr. Oliver of Boston, the cobweb administered in the dose of five or six grains repeated every fourth or fifth hour, produce the most pleasant effects. Dr. Eberle in his materia medica, tells us that Dr. Jackson succeeded in relieving a case of asth-

ma which was hereditary and attended with malformation of the chest; twenty grs. of the cobweb produced sound sleep, which he had not experienced for six years before.]

The morbid sensibility might naturally induce us to expect advantage from the administration of *antispasmodics*, more especially ether and laudanum. Though serviceable in a few cases, this combination for the most part fails in imparting even temporary relief. Dr. Bree has convinced himself that such medicines are useful *only* when the disease has existed long, when the fit recurs from habit and sympathy, and when our object is merely to vary impressions. In this state, opium alone is often useful, but its powers are much increased by combination with ether. The tact of experience can alone teach when the disease has assumed that *habitual* form, in which antispasmodics are indicated.*

As the fit of asthma so frequently arises from disordered states of the stomach and bowels, the employment of laxatives during the paroxysm affords an obvious means of relief. In a few cases, the action of a smart purgative carries off the fit; but, in general, purging, where advisable, should be attempted by rhubarb, castor oil, and the absorbent earths. Dr. Bree has observed the excellent effects which result from the use of chalk and rhubarb. The cold bath has been recommended as a powerful means of directly checking the asthmatic fit. Where the constitution is vigorous, it may occasionally be advisable to employ it.

[Chalk appears to be particularly valuable after the gentle operation of an emetic in the first of the paroxysm. In the third variety, where the disease is caused by dys-

* [Hyoscyamus is often useful, when opium cannot be borne; it may be given in the dose of half a grain of the extract combined with 10 grs. of nitre thrice a day. It does not bind the body like opium.]

pepsia only, it is very valuable given after the contents of the stomach are evacuated: the rhubarb then given so as to open the bowels, and after two days, adding opium, the fit will generally be prevented. The evacuation of the first passages is necessary, and a free use of chalk.

The warm bath is hurtful in every stage and form of asthma.]

2. In the intervals of the paroxysms, attention is principally to be paid to the careful avoiding of the several exciting causes of the disease. Attempts are to be made also to give tone to the capillary vessels of the lungs, and to promote the strength of the stomach and general system. To enter upon such a plan with any prospect of success, co-operation on the part of the patient is indispensable. His health is in a great measure in his own hands. Abstinence from what is hurtful rests alone with him, and this can never be compensated by the prescriptions of his physician. To *aid* the efforts of the asthmatic, preparations of iron, bitters, and the mineral acids, may be advised. A tea-spoonful of the carbonate of iron may be given three times a day, or the following pills, as recommended by Dr. Bree, or the annexed chalybeate electuary.*

R. Carbon. ferri. ʒiss.

Rhei. pulv. gr. xv.

Ol. cantharid. gtt. v.

Conserv. rosar. q. suf. ut fiat massula, in pill. xx. divid.

Dose, iii. evening and morning, and after it 15 drops of the elixir of vitriol in an infusion of ginger.

R. Ferri. sub-carbonat. ʒiii.

Syrup. aurantior. ʒi.

Pulv. cinnamom. comp. ʒi.

M. f. electuar. sumt. ʒi. bis die.

* [In asthma, Dr. Eberle observes in his *Materia Medica*, the bark is only useful where it is connected with a cachectic state of the system, and indigestion;—then united with other tonics, it may be used with advantage.]

[The use of Dr. Griffith's myrrh mixture is highly recommended in the intervals by Dr. Bree. See the article Consumption, vol. i.

The use of all tonics are valuable in the intervals of the fits in the first and second forms; and if they produce any inconvenience, some other should be pitched upon, as there can be no doubt of the propriety of these medicines; at the same time avoiding their prescription if there be any latent inflammation of the breast, or disposition to phthisis, or on the occurrence of febrile affections.* They, however, must be expected to do good only after a long perseverance. The preparations of iron, as above recommended, are the best, using rhubarb to keep the bowels open, and chalk to correct acidity.†]

Cold bathing, daily regular exercise, 'flannel,' and, where possible, frequent changes of air, 'of climate,' of scene, and of amusement, are of real importance. Above all things, attention is to be paid to the regulation of diet. Light and simple food is to be preferred, and always taken in moderation. 'All spirituous, fermented, and vinous liquors are to be avoided.' With these precautions many confirmed asthmatics pass through life in comparative comfort.‡ When the disease is inveterate, the only chance

* Bree, p. 198. Philadelphia, 1811.

† Bree.

‡ [If there should be any evidences of effusion into the thorax, as shown by difficult breathing, the digitalis may be continued in the intervals of the paroxysm with good results. Sometimes, when from the evidence of premonitory symptoms, the fit is expected, an emetic given in the evening has the most happy effect in preventing it. Ipecacuanha will be found to be most valuable. Garlic, as a part of the diet, has been found useful. Honey taken in considerable quantities has also been of service in the intervals of the paroxysms.

It is necessary to be a little more specific on the subject of diet. Solid food, and none but that which is light and easy of digestion, should be preferred; as lean beef, mutton, fowls boiled and under done, well spiced. It should be taken in small quantities and frequently; avoiding

of permanent cure rests in a complete change in all the habits of life. A splendid example of what may be effected by such a measure is recorded in Dr. Bree's work ;* and our confidence in the plans of treatment which that author recommends cannot be misplaced, when we find him to have successfully practised what he so eloquently teaches.

excessive repletion after long fasting, and particularly vegetable food. Smoked meats, pastry, fat pork or beef, water fowl, sallads, raw vegetables, and unripe fruits, boiled cabbage, and carrots, rich soups, jellies and sauces, are to be avoided, as they often bring on a fit. Every thing which is improper in dyspepsia, is so in asthma : intoxication and surfeit are particularly so. Malt liquor should be particularly avoided, as also watery gruels, or broths. During the fit, acidulated water, milk, ginger tea, with toasted bread, and rice boiled in broth, are better than mere diluents. Barley water, and all simple diluents, ferment on the stomach. Coffee will be found to be valuable as a common drink ; in the dry asthma, it may sometimes be too stimulating ; it should be taken in infusion, and not boiled, as its strength is thus dissipated. Cold water, acidulated with vinegar, or vitriolic acid, makes a good drink ; the drink should never be taken warm. Cold water, taken in large draughts, often abates the threatenings of a paroxysm, and quiets the stomach, which is often uneasy on the approach of the fit. Sometimes brandy and water has a better effect for this purpose.†]

* Inquiry into disordered Respiration, p. 347.

† Bree.

CHAP. III.

HOOPING COUGH.

On Cough as a Symptom of thoracic Disease—Early Notices concerning Hooping Cough—Manner of its Invasion—Progress of the Disease—Prognosis—Modes by which it proves fatal—Propagation by specific Contagion—Nature of the Affection—Principles of Treatment—Remarks on the Administration of different Remedies—Influence of Change of Air.

COUGH and difficult breathing are the leading symptoms of thoracic disease, whether acute or chronic; but they occur in such very different forms, they are so infinitely diversified in their combinations with each other, and with other local and general symptoms of disease of the chest, in their periods of occurrence and duration, and in the degree of their violence, that no inconsiderable difficulty is experienced in forming a true estimate of their bearing in particular cases. This position I attempted to illustrate in the last chapter, when treating of dyspnœa. It again meets us in our inquiries concerning the nature and varieties of *chronic cough*.

The pathology of cough is much simpler than that of difficult breathing. It always depends upon some morbid condition of the mucous expansion of the lungs and air-

passages. This may be either a præternatural *dryness* of the membrane, by which it is rendered unusually susceptible of the stimulus of dust, of vapours, or of a cold moist air;—or, secondly, inflammation and its consequences; or, what approaches very near to it, the state of vascular congestion;—or, lastly, it may be some poison circulating in the system, and possessing, from circumstances unknown, a peculiar disposition to affect the bronchial membrane.* Cough, as arising from the first

* [We may safely call in question the validity of any opinion founded on the circulation of poison in the mass of blood. The contagious effluvia of small-pox, measles, and pertussis, do not seem to engender disease by running the round of the circulation, but by a peculiar irritation upon the nerves. Would either of them give rise to their specific effects, if they were injected directly into the blood? We imagine more serious consequences would soon be perceived. We cannot inoculate with the blood of those who labour under either of them. If poisons do not act as irritants simply, by nervous association, they must be conveyed to distant parts by the lymphatics, and through all attached to that particular organization, for which each seems to hold an elective attraction.

Pertussis is unquestionably propagated by an effluvium from the lungs under the action of a secretion which we call specific, because we are ignorant of its essential qualities. It communicates its own similitude, and like the contagion of measles, seems to be primarily generated in the atmosphere. Scarlatina, measles, and c. parotidœa, seem to arise in the same element, and are capable of producing in the living system an animal poisonous secretion, the effluvium from which is tantamount to the first cause, provided it come into contact with the peculiar organization whence it has been secreted in another person. Pertussis, like cynanche parotidœa, is not so much controlled by temperature as measles. A very high temperature seems to be incompatible with the existence of the cause of measles in the common air, whereas pertussis seems to prevail equally at all seasons and under every temperature, although, it seems probable, cold may become the exciting cause; and hence it is often complicated with catarrhal symptoms. Without the cooperation of a diminished temperature, or some vicissitude of the weather, the disease seems to be confined principally to the bronchia and lungs, to which it probably is first attached, and from which it seldom radiates much if ever, without the cooperation of some other cause.

of these sources, is a mere symptom of *general fever*. As it occurs in consequence of inflammation, or of any disturbed state of circulation allied to inflammation, it has been already discussed under the title of *subacute* and *chronic* bronchitis. It now remains, that I consider chronic cough as it arises *idiopathically* from unknown, or at least very obscure causes. This singular variety of disease, prevailing chiefly among infants and children, is well known to the world under the title of *hooping cough*, and from nosologists it has received the name of Pertussis.

Hooping cough is not described by any of the Greek, Roman, or Arabian authors. It is impossible to suppose that a disease so strongly marked as this, could have escaped the attention of the ancient physicians, had it then existed. We must presume, therefore, that it was not known in Europe before the thirteenth, or perhaps even the fourteenth century. It was first accurately described by Dr. Willis* in 1664. The most complete treatise on the disease which has since appeared is that of Dr. Watt of Glasgow,† in which the student will find a copious account of the opinions of the best authors.

When meteorological causes act upon lungs, already impressed by the poison of pertussis, catarrh, pneumonia, or hæmoptoc, may be excited, and the greatest danger from pertussis are to be apprehended from such modifications of disease. We think it may generally be distinguished from simple catarrh in a week, and often sooner, by the absence of those general symptoms that so often immediately follow catarrh. In pertussis, there is scarcely any increase of heat on the surface, the pulses are less disturbed, except during the paroxysm of coughing, and the tongue is more natural in its appearance. The coryza and secretion from the schneiderian membrane generally do not belong to pertussis, unless it be complicated with catarrh. The bronchial secretion is usually slower in its progress in pertussis than in catarrh. P.]

* Pathologia Cerebri et Nervosi Generis, cap. 12.

† Treatise on the Nature, History, and Treatment of Chincough, 1813.

The phenomena which hooping cough presents, as well in its origin as in its subsequent progress, may be thus briefly described. It begins with the common symptoms of catarrh, from which indeed it cannot be distinguished by any known criterion for the first week. It has been observed, that the usual catarrhal symptoms are here accompanied with a more than ordinary disposition to sleep, and those which denote general fever are seldom very strongly marked. About the end of the second, or beginning of the third week, the symptoms undergo a remarkable change: the fever declines, and appetite returns; but the cough continues, and occurs in paroxysms of extraordinary violence. The child struggles for breath, and appears in danger of suffocation until relieved by the long and full inspiration known under the name of the *back draught*, or hoop. The fit of coughing continues for several minutes, and is commonly terminated by expectoration of mucus, sometimes by vomiting, and occasionally by bleeding at the nose, or an epileptic paroxysm. In very bad cases, even this relief is denied to the little patient, whose efforts end only with his complete exhaustion. It is distressing to witness the attempts made to expectorate. The child appears conscious of the benefit which is thus afforded to him, and he continues coughing until expectoration is effected.

The fits vary much in frequency. In mild cases they do not occur more than three or four times a day. In severe ones, they harass the patient every half hour. It is very rare to find them recurring at regular intervals. They are often brought on by exertions of body, or emotions of mind.* It is common, therefore, to find the child

* [Whatsoever hurries the circulation, seems to excite the paroxysm, as long as the disease continues contagious. When the poison shall have ceased to act, and the cough becomes habitual, stimuli of almost every description, if they are accommodated to the morbid condition of the

averse from moving or speaking. He is often aware of the approach of the fit, and lays hold of any thing near him for support. He finds relief by stooping forward, and by support given to the head and back.

When once the disease has assumed its regular form, the appetite is good, and this is strikingly displayed in the craving for food, which comes on when the fit terminates by vomiting. The tongue is always *clean and moist*.

parts, contribute to interrupt the force of habit. In the early stage of the disease, the stimulating passions and emotions excite the paroxysm, and those that depress the circulating powers, avert it. Whatsoever occupies the mind powerfully, (to the entire exclusion of other impressions) will procrastinate the paroxysm, unless it excite the action of the heart. The dread of corporeal castigation has prevented the recurrence of the fits in children, till they discovered the object of the threat. A greater degree of fear, which possessed the mind so entirely as to extinguish all hope of temporal salvation, has cured the disease. Two children, the one aged seven, the other ten years and six months old, were rescued from a house in flames, a few minutes before the roof fell in. The elder was in a state of syncope, and the other was lying on the floor nearly exhausted, speechless and incapable of motion. The elder had laboured under pertussis about fourteen, and the younger about seventeen days. The elder did not afterwards cough, nor discover any symptom of the disease, but convalesced rapidly. The younger coughed twice on the succeeding day, and from that time gradually recovered without any sign of bronchial or pulmonary disease.

The "permanent dyspnœa, tensive pain of the head, and hydrocephalic" symptoms, are so many admonitions to draw blood early, in all cases of pertussis in which there is evidence of fever, great flushing or swelling of the face, a difficulty of expectoration, or frequent hemorrhagy from the nose; unless there be some contra indication, arising from great exhaustion or emaciation.

The marasmus or hectic fever alluded to is generally the sequel of neglected evacuations in the first stage. The great quantity of inflammatory secretion, from the bronchia and lungs (especially in scrofulous subjects) seems to be the cause of the abject state of which the patient dies. Although the fluid expectorated is not pus, it seems to approach very nearly the purulent character; and the fever is not so strongly marked as the ordinary hectic of phthisis pulmonalis. P.]

There is no difficulty of breathing in the intervals of the fit. Permanent dyspnœa betokens something more than mere hooping cough,—probably an inflammatory condition of the bronchial membrane. The bowels are seldom affected. It is very common to find children with hooping cough complaining of a *tensive* pain of the forehead, and in severe cases this is obviously an *urgent* symptom, and one which demands attention in reference to practice.

The further progress and duration of hooping cough are subject to great variety. In its mildest form it generally lasts two or three months; and when severe, is often protracted to six or seven. Even after it has wholly ceased, or nearly so, an accidental exposure to cold has occasioned its return. Under the most favourable circumstances the decline of the disease is very gradual, and almost imperceptible. It happens, however, but too frequently, that the latter stages of the disease are attended with a formidable train of evils. In some cases a convulsion fit occurs in one of the paroxysms, and carries off the patient when the practitioner is least prepared for it. In other cases, from exposure to cold, pneumonic symptoms supervene, and the child either dies with his lungs gorged with blood, or the foundation is laid for a species of infantile phthisis.* In a third set of cases, hooping cough brings on genuine hydrocephalus, and the child dies in a state of coma. This might oftener be anticipated, when we reflect with what force the blood is driven upon the brain, and how much its return is retarded, during a severe fit of coughing. But of all the modes by which whooping cough proves fatal, the most common is that by *marasmus and infantile fever*. The child after

* The deaths by hooping cough recorded in the London bills of mortality are always very numerous, averaging not less than five hundred annually. In 1822, they amounted to seven hundred and fifty-seven, exceeding the deaths by small-pox.

a continuance of the disease for a certain time, from causes not well understood, loses his appetite, emaciates rapidly, becomes hectic, and dies, *apparently* from pure exhaustion.*

The danger is not proportioned to the age of the patient. A child of two or three *months* old will struggle through the complaint as well as another of two or three years. When it attacks weakly or scrofulous children, or those labouring under some other disease, it is apt to prove severe, tedious, and therefore dangerous. When hooping cough begins late in the spring, it is commonly milder than when its approach is towards the beginning of winter. It is always most destructive in cold climates, and in cold and damp seasons.

The appearances on dissection correspond with the views which have been given of the modes by which this disease proves fatal. Dr. Watt has described several cases in which there were found the clearest proofs of acute bronchial inflammation, conjoined with more or less *congestion* in the substance of the lungs. In some which have been recorded, serous effusion within the ventricles of the brain has been the predominant morbid appearance; while to myself and to many others it has occurred to witness numerous instances, in which, on examination, nothing preternatural has been observed in either of the three great cavities of the body.

Hooping cough, though sometimes met with in adults, is for the most part the disease of early life. It is often epidemic. Few children escape it; but it rarely, if ever, is known to occur more than once in the course of life. From these and other facts which might be adduced, a

* The pathology of this, and of the other varieties of *infantile hectic*, is very little known. An attempt will be made to investigate the subject in a subsequent chapter.

reasonable presumption exists, that it has its origin in a *specific contagion*, which, like those of the influenza and measles, has a direct determination to the membrane of the bronchia, though it is not, like them, essentially linked to fever. The contagion of hooping cough appears to be communicated with great facility. When once it gets entrance into a family, it generally attacks every child.

Different opinions have been entertained regarding the precise nature of hooping cough. It was originally considered as a spasmodic disease, allied in its more obvious features to asthma and chorea, but acknowledging also many of the laws of convulsive diseases generally. This simple and very satisfactory explanation of the pathology of hooping cough has latterly been called in question; and it has been confidently maintained that it is an affection of an inflammatory kind, closely allied to the ordinary varieties of bronchitis. In favour of this opinion it has been argued; 1. that common winter cough frequently shows a strong disposition to spasmodic exacerbation; 2. that all the more important *sequelæ* of hooping cough are of a decidedly inflammatory character; and, 3. that inflammatory affections of another mucous membrane (catarrh, and cynanche maligna) are induced by the operation of a specific contagion. To these arguments it may be replied, that they point out a strong *tendency* in this disease to inflammation, which the practitioner will do well to keep constantly in view; but an impartial observer will not fail to appreciate those more numerous considerations which associate it with the class of spasmodic diseases.

[No diseased appearance whatever in a late case* has been discovered on opening the lungs in hooping-cough; in the brain, great vascularity and turgescence of the blood vessels so as almost to make the convolu-

* Monthly Med. and Chirurg. Review, March 1824.

tions disappear, and effusion of serum, were discovered, proving that the disease had its seat in the brain: this important observation should give a new turn to the pathology of this disease.]

If there is any single argument which might be relied on to justify this latter view of the character of hooping cough, it would be the infinite number of presumed *specifics* for the cure of the complaint. That all of them have been at times serviceable it would be in vain to deny, and the facts are reconcilable only with the notion of the disease being essentially of a spasmodic nature. The leading principles to be kept in view in the treatment of hooping cough are the following. It is a disease arising from a specific contagion, over which we have no direct control. Like small-pox or measles it has a tendency to run a certain course and to wear itself out. The violence of the paroxysms may sometimes be moderated by remedies which diminish irritability generally, and which prove useful in other spasmodic disorders. On the other hand it is to be remembered, that hooping cough occurs at a period of life peculiarly favourable to the lighting up of fever, and to the engendering local determinations of blood. On this account a watchful eye must always be kept on the accompanying constitutional symptoms, and antiphlogistic measures adopted in proportion to their violence.

As to the alleged specifics in hooping cough, I need not do more than simply enumerate them. Their very number is a satisfactory proof that no single remedy is of much service. They are, cantharides, paregoric elixir, assafoetida, castor, bark, cupmoss, musk natural and artificial, mezereon, nitre, arsenic, and prussic acid. Without detaining the reader by a detail of the relative merits of these drugs, I shall at once proceed to offer a few remarks on those means of more acknowledged power

which have been sanctioned by long and general use ; such as emetics, narcotics, expectorants, stimulant embrocations, laxatives, mercurial alteratives, local and general depletion, and change of air.

1. Emetics were probably first employed from its being observed that vomiting is one of the common terminations of the paroxysm, and that children who vomit, commonly pass through the disease easily. There is a great difference, however, between natural vomiting and that which is the result of an irritating medicine, more especially of tartar emetic, which has often been employed with this view. It will, in fact, be found in practice, that *frequent* emetics, from their tendency to weaken the stomach, are inadmissible ; but from the *occasional* exhibition of a few grains of ipecacuanha, some benefit may reasonably be expected. ‘Antimonial wine will be found to be extremely valuable in cutting short the paroxysm. It may be given to a child two years old in the dose of a tea-spoonful every fifteen minutes till it vomits ; two or three doses will generally be sufficient. When nausea only is excited it will allay the vomiting.’

2. When the disease has subsisted for any length of time, the mild narcotics are decidedly useful. Of these, conium is the best, and has indeed been very generally employed since Dr. Butter’s strong recommendation of it.* The form in which I commonly administer it, is the following.

R. Extract. Conii. gr. iii.
 Magnes. Sulphat. ℥i.
 Aq. Carui. 3v.
 Syrup. rhead. 3i.
 M. fiat. haust. ter. ind. sumend. dos. gtt. xxx.

Other practitioners have found advantage from hyos-

* Treatise on the Kink-Cough.

cyamus, the lactuca virosa, the superacetate of lead, and opium. The annexed formula has proved exceedingly useful in many cases.

R. Succ. Spissat. lactuc. Viros. \mathfrak{zss} .
 Pulv. tragacanth. Compos. \mathfrak{z} i.
 Potass. Nitrat. \mathfrak{z} ii.
 Mist. Amygdal. \mathfrak{z} iv.
 M. Cap. \mathfrak{z} i. t. d.

Opium for the most part confines the bowels, and makes the child feverish. 'The belladonna has been employed on the continent by Hufeland, with great success; he administers it in the quantity of a quarter of a grain of the powdered root in a little sugar; given morning and evening, to a child under one year: $\frac{1}{2}$ a gr. to those of two or three years; $1\frac{1}{2}$ gr. to those of five or six years; by continuing the dose, it may be gradually enlarged.*

[The extract of the rhus vernix, in the quantity of four grs. to 4 ounces of syrup, is given in the dose of \mathfrak{zss} . every three hours with great success. M. Fresnoi cured 42 children in a short time at Valenciennes by this plan, in 1786.†

Dr. Eberle mentions in his materia medica, several great names, who speak in the warmest terms in praise of the belladonna, in whooping cough. He adds his own experience, which he states was very much in favour of it.

The same author also states some decided experience on the subject of the prussic acid in this disease. It has been used in the form of the cherry laurel water, for some time in Germany, with great success.

The peruvian bark was thought by Dr. Cullen, to be extremely valuable in this stage: it is used in Germany, united with the sulphuret of antimony. The oxide of

* Thomas, p. 408.

† Good, vol. i. p. 359.

zinc, and the arsenical solution of Fowler, are also praised.]

3. Expectorant medicines, of several kinds, have been tried, and occasionally have proved singularly beneficial. Dr. Richard Pearson* has spoken in high terms of the combined influence of an expectorant (the *vinum ipecacuanhæ*;) with an anodyne and absorbent. He recommends this formula.

R. Aq. pur. ℥i.

Syrup. ℥iii.

Sod. subcarbon. gr. xxv.

Vin. ipecac. ℥i.

Tinct. opii. gtt. vi.

M. Sum. part. sext. quart. vel sext. quaq. hor.

This dose is intended for a child between one and two years.

4. Stimulant embrocations enjoy a high reputation for the relief of hooping cough. The following formulæ may be tried with some prospect of advantage.

R. antimon. tartar. ℥ii.

Tinct. cantharid. ℥i.

Aq. ros. (calid.) ℥ii.

Solve antimon. tartariz. in aq. ros. dein.

Adjice tinctur. fiat embrocatio.

R. Liniment. sapon. ℥iss.

Ol. succin. ℥ss.

M. f. embrocatio.

They should be applied not only to the chest, but along the course of the spine; and the milder ones may be repeated frequently during the day.†

* *Medico-Chirurgical Transactions*, vol. i. p. 23.

† [Blisters have often been used with great benefit; and it was formerly thought that when they produced strangury, they were more effectual; and in order to effect this, cantharides have been administered internally; the result however, is not always favourable. Dr. Lettsom gave it with the bark; it has not succeeded so well in the hands of others.‡]

In addition to those stimulants above mentioned, garlic, ammoniac, ether, and turpentine have been found useful as irritants to the surface.]

‡ Good, vol. i. p. 358.

5. An open state of the bowels is almost essential to the favourable progress of the disease. An occasional dose of rhubarb, in conjunction with an absorbent, is of decided advantage. Dr. R. Pearson has observed, that the slimy fluid brought up by vomiting has often a sour smell; 'attention to diet is often sufficient; roasted apples, stewed prunes, &c.'

6. In the latter stages of hooping cough, where it becomes combined with symptoms of marasmus, I have derived great benefit from small alterative doses of calomel (a grain twice a day with a little sugar), and to this may be united very advantageously a few grains of scammony.

R. hydrargyr. submur. gr. ii.

Pulv. Scammon. gr. iv.

Sacchar. purificat. gr. ii.

M. f. pulv.

7. In all severe cases, when the cough is accompanied with permanent dyspnœa, much heat of skin, and other febrile symptoms, general or local blood-letting ought never to be omitted. It is frequently necessary to repeat the evacuation of blood two or three times before the symptoms begin to yield. When the child complains of much headache, it will be found very necessary to apply a few leeches to the head. It has even been observed, that the severity of the *hoop* has been in this way diminished, and the acknowledged influence of certain states of the brain upon the respiratory organs may be adduced in explanation of the fact.

8. When the disease proves very tedious and obstinate, resisting all the common modes of relief, and exhausting the patient by its continuance, we may fairly presume that it has rooted itself in the system by the force of habit; and to break in upon this, change of air has long been found eminently beneficial. It is often the only thing that gives the patient a chance for life. But it must be remembered

in what circumstances it is applicable, and should never be advised where symptoms of bronchial inflammation are present, and where a free exposure to cold air would, in all probability, be detrimental.

[Dr. Eberle in his *Materia Medica*, states that in Germany the bark is much used in whooping cough. It can be used, as that learned author judiciously states, only in the last stage, when the cough is kept up by habit.]

CHAP. IV.

CHRONIC AFFECTIONS OF THE HEART.

Sketch of the Objects of Investigation in this and the succeeding Chapter—Functional Disturbances of the Heart—Syncope—Its Causes—and Mode of Treatment—Palpitation—Its several Causes—Angina Pectoris—Literary notices concerning this Affection—Its Symptoms and Progress—Morbid Appearances—Pathology—Treatment—Structural Diseases of the Heart and great Vessels—Enlarged Heart—Diseased Valves—Aneurism of the thoracic Aorta—Congenital Malformations—Symptoms occasioned by them—Morbus cæruleus.

THERE is no class of diseases which submits so difficultly to the trammels of nosological arrangement as the chronic affections of the heart. Their characters are so ill defined, so difficult is it to distinguish the idiopathic affections of this organ from those cases in which its functions are sympathetically disturbed, so *impossible* to anticipate with certainty by the symptoms the presence of structural disease there; in fine, so intimately are the functional disorders of the heart connected with those of the brain, that an attempt to arrange systematically this class of diseases may be considered as almost hopeless.

My object in bringing them together is merely to offer a few suggestions upon each, calculated to assist the student in determining the pathological character of particular symptoms, and to impress upon his attention those general views regarding chronic affections of the heart to which modern pathologists have principally attached importance.

I shall first treat of such as are commonly functional, and, comparatively speaking, of little danger, *viz.* syncope and palpitation; and afterwards advert to those in which disorganization of the heart or great vessels is *manifest*. The link uniting the two will be found in that singular affection known by the popular but unscientific name of angina pectoris. The obscure subject of asphyxia naturally connects itself with our inquiries concerning the morbid conditions of the heart; but its bearings are of so very general a kind, that it will be better to refer the consideration of it to a separate chapter.

Syncope or fainting consists, as is well known, in the temporary suspension of the functions of the heart, and consequently of every other function of the body. A dimness comes before the eyes; a deadly paleness overspreads the cheeks; the patient falls down; the pulse fails; respiration is at a stand; sensation and all mental phænomena cease. In some cases indeed, the patient, though incapable of speaking, retains enough of perception and sensation to be conscious of his own disorder, and of what is passing around him. The disease brings with it its own cure. The horizontal position to which it reduces the body quickly renews the supply of blood to the heart, and the fit of syncope is over. In a few cases, recovery is accompanied with a confusion of ideas, vertigo, and headache. Much more frequently it is described as being attended with very *painful* feelings. Fainting, viewed in the light of a *disease*, must always

from its very nature terminate favourably. I shall have occasion indeed, in the next chapter, to speak of death by *syncope*, that is, of a sudden and *permanent* check given to the heart's action ; but to such a state, the term fainting, in its common acceptation, is obviously inapplicable.

Nosologists have attempted to distinguish different degrees of swooning, to which they have applied the terms *leipothymia*, *leipopsychia*, *echysis*, *syncope*, and *apopsychia* ; but there are certainly no real grounds in nature for any such distinctions. It may be considered, indeed, in a pathological point of view, as arising from two different sources,—imperfect supply of blood, and defect of nervous power : and in one or both of these ways it will be easy to understand the operation of the several predisposing and exciting causes of fainting, which systematic writers have enumerated.

A predisposition to fainting is given by original delicacy of organization. Hence it is so much more frequent among women than men. Weakness of constitution, the result of long illnesses, or of scanty nourishment, may be viewed in the same light. In convalescents from typhoid fevers, the exertion of getting out of bed is often followed by a fit of *syncope*.

The most common exciting causes of a fainting fit in persons otherwise in good health are, violent and long-continued exertion, long continuance in the erect position, violent and protracted pain, 'aneurism of the heart, and large vessels, ossification of the large vessels, and of the valves of the heart,' excessive evacuations, whether of blood, 'of water, as in tapping a dropsical swelling,' or by purging, external heat, the sudden operation of a depressing passion, and in very delicate habits of body certain objects of dread and antipathy.

The treatment applicable to the state of *syncope* is

very obvious and simple, and, excepting in the case of syncope from flooding, rarely, if ever, demands the exercise of professional skill. The horizontal posture, a free current of cold air, sprinkling a little cold water over the face, and hartshorn held to the nostrils, will be sufficient to re-excite the circulation in common cases. In those severe ones which are the consequence of excessive evacuations of blood, the most powerful stimulants are often required, and an unremitted perseverance in them can alone ensure the safety of the patient. 'Instead of putting the patient in the horizontal posture, it will often be desirable to place the head lower than the body; the recovery is then instantaneous: This event is extremely desirable, when the patient is weak, as a few moments in a state of asphyxia may be fatal: He is afterwards to be treated as his debility may indicate.'

There are few sensations better known, and which create at the same time more uneasiness, than that to which the term PALPITATION is popularly applied; and it is not therefore surprising that pathologists should have directed so large a share of their attention towards it. By some it has been advanced to the rank of an *idiopathic* affection, and considered in the light of a *convulsion*. By others, and certainly with more justice, it is viewed merely as a symptom, arising from various causes, sometimes quite unimportant, but sometimes indicating in conjunction with other symptoms, disease in different parts. A few observations on the nature and sources of palpitation may be of some assistance to the student with a view to the diagnosis of disease, and the administration of remedies.

When the action of the heart becomes, from any cause, perceptible to the individual, he is said to have *palpitation*.

Such irregular action may be either sharp and strong, when it is called *throbbing* of the heart; or it may be soft and feeble, when it is called a *fluttering*. The sensations of the patient are obviously to be ascribed to the rebound of the heart against the inside of the chest. With a view to practice, a distinction is to be drawn between *permanent* and *occasional* palpitation. The former is always, or nearly always, the result of organic disease existing within the chest, more especially of water accumulated in the cavities of the pleura or pericardium, ossified valves, pericarditis acute and chronic, and its consequences. The latter also may sometimes indicate structural derangement, but it is far more commonly the evidence merely of *sympathetic* disturbance in the action of the heart. To this variety of palpitation I confine my attention for the present.

Every one must be sensible of the influence of strong emotions and passions of the mind over the actions of the heart; and palpitation from these causes is very frequent. The notion entertained by Dr. Cullen that this arose from the rapid influx of nervous power into the muscular fibres of the heart, is too hypothetical to require discussion; but the *facts* now adduced are sufficient to explain why palpitation should occur, secondly, as a symptom of general disturbance in the whole system. It is frequently observed in persons of *irritable* habit, and is often connected with amenorrhœa, chlorosis, and hysteria, of which latter disease the *animus varius et mutabilis* constitutes so striking a feature. Palpitation is owing, thirdly, to preternatural increase in the velocity of the blood, as where it is brought on by violent exercise.* It arises, fourthly, from sympathy of the heart with certain de-

* [Various affections of the stomach give occasion to palpitations of the heart. Many delicate dyspeptic persons feel more or less the effects of this association. P.]

ranged conditions of the abdominal viscera, and consequently is a frequent symptom of dyspepsia and diseased liver. It is hardly consistent with sound pathology to attempt any more *precise* explanation of this phænomenon, than what the term *nervous sympathy* suggests.

The last proximate cause of palpitation to which I shall allude, is *weakness* of the heart's action. It seems to be a law of the human economy, that debility in the exercise of any function often produces temporary efforts at more vigorous exertion, and commonly in a convulsive manner. Hence it is that syncope and palpitation are so often associated together.

It is obviously impossible to afford any useful rules to the student for the treatment of palpitation. An affection arising from such various and even opposite causes, must be met (where any treatment is required) by measures adapted to the particular circumstances of each case.*

* [Palpitation of the heart may take place at any period of life; but it is more common at an early period than any other,—as, for instance, from fifteen to twenty-five years of age. Perhaps, too, it may be more common in females than in males; but of this I am not very certain. At an early period of life, it does not, in general, depend upon any diseased structure of the heart, but either on a morbid irritability of the nerves of this organ, or upon some imperfect state of digestion. When it takes place from either of these causes, it always continues for a long time, (often, more or less, for two or three years,) but at length generally subsides. Rest of body and quietness of mind are two of the chief means which contribute to remove this disease. All quick motion of the body, and more especially walking up ascents, increases the complaint, and should as much as possible be avoided. Every thing which tends to excite or harass the mind has the same effect, and should be shunned whenever it is possible. To rest of body and mind should be joined very temperate diet; and, when this general plan of management has been continued for many months, or perhaps for a year or two, the disease usually subsides. Digitalis has sometimes been useful in mitigating this complaint, but frequently it produces no good effect.

ANGINA PECTORIS.

To a disease exhibiting many uniform and characteristic symptoms, and usually considered as depending on some chronic derangement in the heart, either functional or structural, Dr. Heberden, in 1768, gave the name of

Where the palpitation depends, either altogether or chiefly, upon the state of the stomach, it is gradually removed by temperance, by improving the condition of the stomach, and by keeping the bowels free from costiveness. I remember one case in which palpitation of the heart had taken place, and had continued for six months, in consequence of gout having attacked this organ. In this case palpitation ceased suddenly and entirely, when the gout attacked one of the feet in a full and decided form. This person is now alive, and has continued generally in good health, although it be nearly twenty years since the attack of palpitation.

In some young persons, palpitation depends upon an enlargement of the several cavities of the heart, produced not unfrequently by rheumatism attacking this organ. This cause of enlargement of the heart was overlooked by the physicians of this country, till it was discovered by the sagacity of my esteemed friend, the late Dr. David Pitcairn. The enlargement, in general, goes on increasing till life is destroyed; but I have known two cases where the enlargement stopped at a certain point, the increased action of the heart in a great measure subsided, and the patients acquired a tolerable share of health. They are both now alive, and they have the prospect of living, with care, to the ordinary term of life. Such a fortunate issue is very rare; but the disease may be generally retarded in its progress by much rest of body, quietness of mind, and a very temperate mode of living. Wine and every other fermented liquor should be avoided; and the patients, under such circumstances, should live almost entirely upon vegetable food.

At the middle and more advanced periods of life, palpitation of the heart often depends upon a diseased structure of some of its valves. This condition of the heart does not admit of any remedy, but must gradually become worse, until life be extinguished. But the symptoms may be mitigated, and the progress of the disease retarded, by little exertion of the body, by great temperance, and by a few ounces of blood being occasionally taken from the arm.]

[*The unpublished works of Dr. Baillie.*

ANGINA PECTORIS.* Dr. Parry, of Bath, has treated of it fully, under the title of syncope anginosa.† In Dr. Cullen's nosology it has received no place, although it might readily have found one next to asthma, to which, in many of its characters, it bears a strong analogy. Modern writers have added but little to the observations of the distinguished author who first described this disease.

Angina pectoris consists of repeated paroxysms of violent pain or uneasiness about the chest, occurring principally when the patient is walking up hill, or soon after eating. The feeling of pain is so acute as to make him instantly stand still, and even to give the apprehension of immediate death; it is referred to the sternum a little inclined to the left side; from this point it shoots across the breast to the left arm, and appears to terminate at the elbow. In some cases it shoots to the right breast, and passes down the right arm in a similar manner. At first the paroxysms do not last more than a few minutes, and occur only at long intervals. Gradually they lengthen, and recur too with increased frequency; being brought on, not only when the patient is walking, but when sitting or lying down, and by the slightest bodily exertions, or even anxiety of mind. The duration of the paroxysm has been, in some very severe cases, protracted to half an hour or more, the face and extremities becoming pale and bathed in a cold sweat, and the patient, for a while perhaps, deprived of the power of sense and voluntary motion.

The character of the pulse during the fit is apparently subject to considerable variety. Dr. Heberden found it

* Transactions of the London College of Physicians, vol. ii. page 59.

“Some Account of a Disorder of the Breast.” By Dr. Heberden.

† Inquiry into the Symptoms and Causes of the Syncope Anginosa. 1799.

sometimes, though far from uniformly, affected. Dr. Fothergill reports, that in his cases it was commonly intermitting or irregular. There is always some difficulty of breathing, or at least a distressing sense of *suffocation*, present at the same time; and in the advanced periods of the disease the stomach becomes unusually irritable. Angina pectoris has been known to last for many years; yet the prognosis is very unfavourable. In the larger proportion of cases it proves fatal *suddenly*, from causes which will soon come under consideration. The diagnosis has often been looked upon as a matter of considerable difficulty, but I think without sufficient reason. Angina pectoris derives its character from symptoms present during life, and not from any appearances found after death; and if the former are observed, the disease is at once entitled to such a denomination.

It has indeed been attempted by some pathologists to attach the peculiar symptoms of angina pectoris exclusively to an ossified state of the coronary vessels of the heart; but this is taking too confined a view of the subject. More enlarged experience will show, that this state of disease is connected with several kinds of structural derangement within the thorax,* though certainly this is the most frequent of them all; but to prove that the restricted notions of the disease entertained by Dr. Parry and others are not correct, it is sufficient to state, that in many cases (and very remarkably in that described

* [Angina pectoris is certainly sometimes dependent upon a more distant origin than the immediate state of the lungs. In one of our patients, all the symptoms were clearly expressed, as consequences of a schirrous condition of the lower orifice of the stomach. In another, a metastasis of gout from the feet, assumed all the characters of angina pectoris. This last seems to have superseded the original affection of the feet, which has not returned for three years, whilst the pectoral affection is frequently repeated. P.]

by Mr. H. Watson*) a most extensive ossification of the coronary arteries existed without giving rise to a single symptom of thoracic disease.† Dr. Latham, in an interesting communication to the London College of Physicians,‡ has described two cases of enlarged liver, in which all the genuine symptoms of angina pectoris were observed. Both patients died suddenly.§

This disease, lastly, has proved fatal where the most accurate anatomists have failed in detecting any morbid alteration of structure. Upon the whole, therefore, we must conclude, that angina pectoris is, in strict pathology, a chronic functional derangement of the thoracic organs, frequently associated with, but not directly depending upon, disorganization of the heart.

The objects of medical treatment in this affection are limited to affording some degree of relief while the paroxysm is actually present, and to the avoiding as far as possible all those circumstances which occasion its renewal. With a view to immediate relief we have recourse to a small blood-letting, carminative draughts, and opiates.||

* Medical Communications, vol. i. p. 234.

† [Dr. Baillie records several instances in which it was symptomatic of gastric disease, and was cured by removing that affection.]

‡ College Transactions, vol. iv. p. 278. "Observations on the Angina Pectoris notha."

§ [The cartilaginous parts of the ribs have been found ossified in some instances; also the semilunar valves; the mediastinum in a state of inflammation; the pericardium has been found to contain concretions of blood. Dr. Hosack refers the disease to plethora; Dr. Darwin to a spasm of the diaphragm; others to the gout.¶]

|| [The preparation of opium most likely to be beneficial where the nervous system or the skin are much affected, is the black drop, or a solution of opium in verjuice, with aromatics. Hyoscyamus is also useful. An emetic has also been advised; the patient to be laid in an inclined posture, and every thing to be kept quiet about him. The limbs should be rubbed with some stimulating liniment.]

¶ Good, vol. i. p. 396.

The more important object of preventing the gradual inroads of the disease upon the constitution, is to be attempted by strict attention to diet and regimen, the regular use of aromatic laxatives, and the insertion of an issue or seton. All practitioners agree in the benefit which is derived from using the lightest and most digestible food, with perfect abstinence from fermented and spirituous liquors. Even in the latter periods of a protracted paroxysm, when the prostration of strength appears extreme, we are to hesitate in giving wine and cordials. The heart is here oppressed, not weakened.*

Any thing that hurries the circulation is sufficient to bring on a paroxysm. The patient should therefore be cautioned to keep his mind quiet, 'avoid anger or any violent emotion,' and to refrain from all severe exercise. Flatus in the stomach and a torpid state of the bowels are so commonly found accompanying this disease, and either inducing or aggravating paroxysms of it, that the practitioner will do well to obviate, by the use of aromatics, bitters, and laxatives, any irregularity in the action of the chylopoietic viscera, which he may observe; 'also by the use of the most digestible aliment.' Where sleep is interrupted, he may with propriety exhibit some narcotic—the extract of hyoscyamus for instance, or opium. Dr. Heberden says, that he has known opiates given at night, in many instances, prevent the accession of a paroxysm.

* [Sir Gilbert Blane has reported a case in which it yielded to a combination of arsenic, digitalis, and mercury. The prussic acid also, given during the paroxysm, has relieved it effectually. Sometimes a hemorrhage or serous discharge from the anus, have effected cures; at other times a gleet.†]

† Good, vol. i. p. 399.

The symptoms occasioned by the several kinds of *structural* disease of the heart and great vessels, have been closely investigated by modern pathologists. Inquiries, however, have rather tended to show that they are obscure, than to establish their uniformity; and as the whole subject is one of curiosity more than of practical interest, I shall be very brief in my notices concerning it.

1. The simplest, and one of the most frequent structural derangements of the heart is dilatation, either general or partial, of its cavities. This sometimes takes place without any increase in the muscular parietes of that organ. At other times the heart is enlarged by an addition of solid substance, cellular and muscular; its cavities remaining little, if at all, more capacious than usual. The symptoms vary according to the *nature* of the enlargement which the heart undergoes. Simple dilatation of its cavities is attended with a sense of oppression about the chest, a full, slow, soft, or sometimes even an *imperceptible* pulse. Persons have lived in this state for many years. The disease goes on, in almost all cases, to produce dropsy, and most remarkable dropsy of the pericardium, and consequently urgent dyspnœa. In some instances chronic inflammation (with adhesion) of the pericardium supervenes a short time before death, when the character of the symptoms very essentially changes. Nothing is known regarding the causes of simple dilatation of the heart. It has been observed in young persons, without any disease of the valves, or other mechanical impediment to the transmission of blood. A disposition to it may be traced in particular families.

2. Where the heart is enlarged by increase of its muscular parietes, the symptoms are nearly the same with those formerly described as attending chronic inflammation of the pericardium. There is a *constant* sense of struggling in the thorax, with inexpressible anxiety re-

ferred to the heart. The pulse is quick, hard, and *jarring*; and when the hand is applied to the chest, the stroke of the heart seems restrained, and is succeeded by a kind of *thrilling*. Such cases are truly deplorable, and much more formidable than those of simple dilatation. The bodily strength becomes rapidly exhausted, the faculties of the mind are overpowered, and the patient is debarred from every source of enjoyment. Dropsy commonly supervenes in this as in the former case.* The solid enlargement of the heart is believed to be always dependent upon some mechanical impediment to the free transmission of the blood, and is therefore often found united to a diseased state of the valves. This suggests the pathological principle, (warranted certainly in many cases,) that in proportion to the resistance offered to the passage of the blood, the circulating powers have their strength augmented.

3. Much importance has always been attached by pathologists to the changes of structure which the valves of the heart and large arteries so frequently undergo, and to the symptoms thereby occasioned. That in many cases diseased valves are the direct cause of various marks of obstructed circulation there can be no doubt; but it is not to be forgotten, that they are often found where no symptoms had led to the suspicion of them. It is, I believe, quite impossible to ascertain with any degree of precision during life the existence of diseased valves, as separate from every other variety of disorganization of the heart. Still more hopeless is any attempt to determine what valve or set of valves are affected. The general symp-

* Consult Mr. Allan Burns's "Observations on some of the most frequent and important Diseases of the Heart." Edinburgh, 1809. To this work I am indebted for the attempt now made to establish the diagnosis between *active* and *passive* enlargement of the heart; but I think it right to add, that it cannot be relied upon in all cases.

toms of obstructed circulation by which we are led to form a plausible conjecture as to the existence of ossified valves, are, according to Dr. Baillie,* frequent palpitations, a difficulty of breathing, a weak and often irregular pulse, and in some cases a disposition to fainting. To these symptoms other authors have added, and I believe justly, hæmorrhage from the lungs, and dropsy.

4. Aneurism of the thoracic aorta is a frequent and most distressing state of disease. It can never be distinguished with any degree of certainty until it has attained to such a size that a tumour begins to be formed externally, accompanied with a strong pulsation. Dr. Baillie cautions us against supposing, that strong pulsation in the chest indicates necessarily *disorganization* of the heart or great vessels. Aneurism of the aorta is generally attended with more or less pain in the tumour, shooting to the arm of the same side; and in proportion to the advances of the disease, the breathing becomes disturbed. It sometimes proves fatal *suddenly* by the bursting of the sac, but in many cases the patient is destroyed more gradually by interruption to the respiration.

The unpleasant symptoms occasioned by aneurism of the aorta admit of very essential relief, and perhaps even the growth of the tumour is sometimes checked, by medicine. Repeated leeches to the chest have proved serviceable in many cases, and the application of cold to the tumour has been occasionally productive of advantage. Digitalis unquestionably possesses a very considerable power in moderating the urgent symptoms; and if to the occasional employment of this drug be added a strict attention to diet and regimen, the patient may often pass the remainder of his days with tolerable ease.

5. Congenital malformations of the heart and large

* Morbid Anatomy, p. 49.

blood-vessels are of various kinds, and they have been ably described by Dr. Farre,* to whose work I beg to refer for the anatomical peculiarities of the several cases. They all agree in one result,—the intermixture of venous with arterial blood throughout the body. It is certainly a curious fact, that life should be compatible with such a state of the circulating system ; yet it is so ; and persons have been known to live for many years with it, and even ultimately to die of a disease unconnected with such deviation from ordinary structure.† The great source of mischief and danger, as Dr. Farre has pointed out, is not the mere mingling of black and red blood, but the *difficulty* with which the circulation is generally carried on by a malformed heart. This is connected, in many cases, with the comparatively small size of the pulmonary artery ; the consequence of which is, that the *full* proportion of blood is not circulated through the lungs.

The principal symptom of malformed heart is a permanent blue colour of the skin ; from which circumstance the term *blue disease*, or *cyanosis*, has commonly been applied to these cases. The other symptoms to which it gives rise are general weakness of the whole frame, permanent or spasmodic dyspnœa, palpitation, an irregular, weak, or intermittent pulse, and in some cases coldness of the skin, and emaciation. Persons who have malformed hearts are liable to hæmorrhages, dropsical effusions, attacks of syncope or of epilepsy, and occasionally to the unequivocal symptoms of oppressed brain.

* Pathological Researches by J. R. Farre, M. D. Essay I. on Malformations of the human Heart. London, 1814.

† See Medico-Chirurgical Transactions, vol. xi. p. 296.

CHAP. V.

ASPHYXIA.

Extent and Obscurity of the Doctrines connected with Asphyxia—Their Application to the Phænomena of Disease—Animal and organic Life—Of the several Modes of Death—Sudden Death, beginning at the Lungs—at the Brain—at the Heart—Exemplified in the Cases of Drowning, Hanging, the narcotic Poisons, irrespirable Gases, Cold—Death by a more general Effect upon the System, instanced in the case of Arsenic and Lightning—Of the immediate Causes of Death in acute and chronic Diseases—Treatment of Cases of suspended Animation—Effects and Application of artificial Respiration.

THE term asphyxia (literally signifying want of pulse) has commonly been appropriated to those cases in which animation is for a time suspended, from some violent cause impeding respiration, such as strangulation, drowning, or exposure to mephitic gases ; but in the present instance I propose to employ it in a much more extended sense. My intention is to include under this head, all those investigations which are connected with sudden death, from whatever cause arising, and without reference to the possibility of subsequent reanimation. Asphyxia,

in this acception, opens a most extensive field of curious investigation, which on many accounts deserves the attention of the physician. Setting aside the importance of the *pathological* doctrines which it directly embraces, or to which it more distantly refers, it is interesting as being one of the most frequent subjects on which judicial examinations of medical men are required. It is no less important as connecting itself very intimately with the more familiar objects of medical inquiry. Asphyxia cannot be considered as a disease, but it is a state nearly allied to it, in which the sources of life and health are suddenly and violently invaded; the different kinds of sudden death being merely the simplest cases and the best illustrations of those terminations of disease, which it is the object of the art of medicine to avert.*

It is hardly necessary to enumerate the many difficulties with which the subject of asphyxia is surrounded. From the remarks already offered, it must be seen to involve a number of the most abstruse questions both in physiology and pathology. To such inherent difficulties is doubtless to be attributed the neglect which asphyxia has experienced from the systematic writers of former times. Bichat, in his *Essay on Life and Death*, first placed the inquiry upon a scientific basis; but much still remains to be done with regard to it, and that, without overstepping those boundaries which physical science ought always to prescribe to itself, in investigating the phænomena of life. Conscious of the difficulties, but aware of the importance of the subject, my endeavour will be to lay before the student such an *elementary* view of the leading principles which it embraces, as may enable him

* For much assistance in the composition of this chapter, I beg to express my obligations to Dr. Alison, Professor of the Theory of Physic in the University of Edinburgh.

to appreciate more fully its bearings, and to prosecute the inquiry hereafter with a more definite understanding of its objects. The principal points to which my attention will be directed, are the causes of death from hanging, drowning, mephitic gases, lightning, and poisons; the causes of sudden death which are independent of external agency; the causes of death in acute and chronic diseases generally; and the means of restoring suspended animation.

The foundation of almost all reasonings concerning asphyxia is laid in the mutual relations and connexions of the three great organs of the body, the heart, the lungs, and the brain; and the consequent division of the phænomena of the living system, into those of *organic* and *animal* life.* It will be sufficient for me here to remind the student, that the heart and arteries are the bases of all the operations of vitality, and the grand source therefore of *organic* life. Fœtuses have been born without a brain, but never without an arterial system. Next to circulation, the most important function in the body is respiration, because by it the *arterialization* of the blood is effected. The third in the series is the brain and nervous system, the origin of *animal* life, and necessary to respiration, inasmuch as that function is carried on by means of *sensations*, which in all cases depend upon a peculiar condition of the brain and nerves. Respiration, therefore, is the link uniting the phænomena of organic and animal life.

All sudden deaths are of one or other of the following kinds: 1. Death beginning at the lungs; 2. Death beginning at the brain; 3. Death beginning at the heart; 4. The simultaneous destruction of animal and organic life. The two first may be considered as modifications of each other; and as they are the most usual modes by

* This great principle in physiology was partially known to some of the older authors, but was first fully developed by Bichat.

which death is effected, whether suddenly or in the progress of disease, they well merit a priority of discussion.

1. An accurate observation of nature will show, that in many kinds of death (well exemplified in that by suffocation) two distinct stages are perceptible. In the first, sensations, thought, and voluntary motions are destroyed. In the second, circulation and the organic functions cease. In common language, the term *life* is annexed to the presence of mental phænomena, and death to their absence. In a strictly physical sense, however, the body is said to be alive, so long as actions are going on in it, differing from any which chemical and mechanical principles can explain. In considering therefore the order in which the functions cease, we do not stop when we come to the cessation of all indications of mind, but we pursue the changes as long as any movements take place in the body inexplicable by such laws. In other words, the body is not pathologically considered as *dead*, until *organic* as well as *animal* life has ceased.

Many theories have been proposed to explain the mode by which *suffocation* proves fatal, and some of them obtained credit from their apparent simplicity. We are indebted to Bichat, however, for proving that the changes in *pure asphyxia* are more complicated than had generally been supposed. He distinctly ascertained that the heart continues to act *after* respiration has ceased; that the left ventricle propels venous blood to all parts of the body; that when a very few waves of unarterialized blood have circulated through the brain, insensibility takes place, and animal life ceases; and, lastly, that the penetration of venous blood gradually destroys the action of the heart itself, and of every other contractile part through which it circulates. Death by pure asphyxia, therefore, is attributable to venous blood acting as a poison, first, upon the nervous, and secondly, upon

the muscular textures of the body. Here animal life (with which suffering is connected) ceases before organic life, and doubtless this is a benevolent provision of nature.

That this is a correct description of the order in which the functions cease in asphyxia, will be rendered apparent by the following considerations. In animals which have been made the subject of experiment, the heart has been seen contracting after the diaphragm has ceased to move. Dark-coloured blood is found in the left side of the heart and in the great arteries. The large veins on the *right* side of the heart are always the most full of blood. The skin and different other organs assume speedily a livid colour.

The principle in pathology now adverted to, admits of a further illustration from what happens in a few cases of drowning, and more frequently after exposure to carbonic acid gas. The action of the heart is renewed, but insensibility continues, and the patient, after remaining in a perfectly apoplectic state for some hours, dies. In some instances, these comatose symptoms have subsided, and life has been preserved. It is fairly presumable, that in cases of this kind the quantity of venous blood which had circulated through the brain, had been sufficient to injure seriously, though not totally to destroy, the functions of the brain.

The sort of death that I have now described as beginning at the lungs, takes place not only in hanging and drowning, but by cutting the spinal cord in the upper part of the neck, whereby the muscles of respiration are paralyzed, and by confining an animal in vacuo, or in a simple irrespirable gas.

2. Death beginning at the brain is closely allied to that which has been just explained. In this instance, the functions of the brain cease first, sensibility, thought, and

voluntary motion. Respiration, which is an action dependent upon sensibility, fails next. The blood not being arterialized, the functions of the heart cease as in the former case. The only difference between death beginning at the brain, and that by suffocation, is, that the circulation of black blood through the arteries is in the present instance the effect, and in the other the cause of the cessation of animal life. This at least is one mode by which death takes place from causes operating immediately on the brain. I shall, hereafter, have occasion to point out that it is not, as Bichat imagined, the only one. It remains to state, that the first link in the chain of phenomena, the cessation of animal life, is not always *instant* and *complete*. Respiration, performed, it is true, slowly and with difficulty, sometimes continues after voluntary motion, and all other marks of sensibility, have ceased. This constitutes, as the student will at once anticipate, the state of coma or apoplexy.

Instances of *sudden* death, beginning at the brain, occur in the case of severe injuries to the head, epileptic fits ushering in the attack of small-pox, poisoning by opium, woorara, and the greater number of the narcotic poisons.

3. Sudden death beginning at the heart opens a field of inquiry not less interesting than that which has already engaged our attention. Here the order in which the functions terminate is reversed. The pulsations of the heart are first stopped; and as the brain ceases to be excited by the stimulus of blood, sensation and voluntary motion and the mental phænomena gradually fail, and with them respiration and the contractile power of moving parts. In this case breathing is the latest act of life, and therefore here only can an animal, in strict pathological language, be said to *expire*.

There is an important principle in pathology involved

in this consideration ; *viz.* that the mere cutting off the supply of arterial blood is not so detrimental to the brain, nor so speedily and certainly fatal, as the penetration of its substance by venous blood. This is the reason why persons recover so easily from fainting, even though sensation and thought be there as completely at a stand as in the case of a drowned man.

On opening the bodies of animals who are killed by some poison acting directly on the heart, *scarlet* blood is found in the left side of that organ, and the heart and large arteries appear turgid. The skin does not become livid as in death by suffocation. Very often, indeed, no perceptible change in the body takes place for many days. In most of these cases the blood is found *uncoagulated*, a phænomenon not yet satisfactorily explained.

Sudden death beginning at the heart occurs from the action of certain *poisons*, as the upas antiar, and tobacco; in particular diseases affecting the heart, as angina pectoris; apparently in some cases from a *paralytic* state of the heart, and lastly, from extreme cold. It is well known, that animals exposed to a certain degree of cold, perish. There is some doubt, however, as to the precise mode by which it destroys life. Some imagine that it operates by *coma*; and others, that it enfeebles, and ultimately checks altogether, the contractile power of the heart. In either case it merits great attention from the practitioner, being frequently associated as the cause of death with simple suffocation.

4. It might be imagined, that excessive hæmorrhage proves fatal by its suddenly checking the heart's action. But it has been shown that the heart continues to contract after all supply of blood to it is cut off, and hæmorrhage therefore is the cause of death by a very obvious but more general effect upon the *whole* system. It is not indeed to be supposed that all cases of sudden death can be classed

under one or other of the heads to which I have now adverted. Such a contracted view of the subject of asphyxia might tend rather to embarrass than to assist the inquiries of the student. He must be aware, that there are, fourthly, cases of sudden death in which all the powers of vitality are at once destroyed, or at least in which the functions of animal and organic life are so equally impaired, that it is impossible to ascertain the order of their cessation. Such cases are far from being rare. The most familiar instance which can be given of them is that of poisoning by *arsenic*, taken in large quantities. The same principle is exemplified where death takes place from lightning, and exposure to the vapours of sulphur; and lastly, it is occasionally instanced in certain violent impressions made on the brain and spinal marrow, where death both of the heart and brain ensues instantaneously, without the intervention of the respiration.

Such are the modes by which the different kinds of sudden death are brought about; and the deviations from these, in the case of death from acute and chronic diseases, are not so great as might at first be imagined. If attention be paid to the series of symptoms that mark the close of life, different sets of phænomena will present themselves. In one instance *dyspnœa* will be first observed, followed by delirium and coma. As this becomes gradually more and more intense, respiration proportionably labours, and at length stops altogether; the extremities grow cold, and the heart ceases to beat. This is plainly death beginning at the lungs. It takes place in almost all diseases affecting the lungs primarily (most obviously in hydrothorax, vomica, and consumption,) and in many of those which affect the lungs secondarily, such as fever, small-pox, and measles.

In another instance *coma* occurs first, and the pulse often continues firm and unaltered in its character, and

the extremities are warm, up to the period when respiration ceases, and when, in the common acceptation of the term, life is at a close. This mode of death (by coma) is witnessed in common cases of apoplexy, in hydrocephalus, phrenitis, and fevers complicated with local determination to the head.

The attentive observer will lastly have occasion to notice many cases where the first symptoms of approaching death are *feebleness of the pulse*, and *cold extremities*, respiration being still free, and the functions of the brain unimpaired. In such cases, it is not uncommon to find the mind perfectly clear, even up to the last breath which the patient draws. Here, in the language of the common people, the patient is said *to die very hard*. It is unnecessary to say, that this is death beginning at the heart, in which no admixture of unarterialized blood overpowers the operations of the nervous system. Such a mode of death is often observed in those who labour under peritoneal inflammation affecting a *large surface* of the membrane, in the case of extensive and violent injuries inflicted upon any part of the body, in severe burns, in ileus, and I believe also in tetanus and hydrophobia. In all these cases, the heart appears to be affected *sympathetically*. This is one of the modes too, by which confluent small-pox proves fatal. We are, lastly, indebted to Mr. Chevalier,* for pointing out to us another occasion in which this mode of death takes place. It is where a woman dies soon after child-birth, especially of twins, without any great degree of hæmorrhage. Here the heart and whole system languish under the efforts of parturition. The blood is detained in the capillaries, and the heart ceases to contract from *exhaustion*.

The only case of disease which occurs to me as illus-

* Medico-Chirurgical Transactions, vol. i. p. 157.

trating the contemporaneous destruction of the brain and heart is that of gangrene, which, like lightning, or arsenic, appears to overpower equally every part of the animal œconomy.

The last topic to which I proposed to advert was the treatment of genuine asphyxia. Animation is here considered to be only *suspended*, and from very early times a notion has prevailed that in such cases the powers of medicine might be signally displayed in the resuscitation of life. It must be obvious, however, to the student, that much caution is here required. While the doctrines connected with asphyxia are involved in such obscurity, it is impossible to suppose that our practice can, or ought to be, regulated by the conjectures of persons, who, whatever be their claims to humanity, have none to physiological knowledge. In cases of such imminent danger as those of asphyxia, a measure not founded upon a thorough acquaintance with the subject may very probably add materially to the danger of the patient, check those ill-understood efforts of nature, from which alone real benefit could have been derived, and thus tend only to *extinguish* the glimmering flame of life. When we find blood-letting, cold affusion, the warm bath, tobacco glysters, galvanism, and artificial respiration, recommended without discrimination in the treatment of asphyxia, it is obvious that no just understanding can exist of the nature of those changes which are taking place in the body, nor of the operation of each remedy. In the few remarks which I have now to offer on the management of persons in the state of asphyxia, I shall be careful not to exceed those limits which the present state of physiological science prescribes.

The first question that naturally occurs is,—for how long a time may breathing be impeded, and the body remain susceptible of reanimation? Instances are recorded

of the recovery of persons after being half an hour under water ; but in a scientific investigation no credit can be given to such statements. It is confidently said, that even the most experienced divers of Ceylon cannot remain under water an entire minute ; and it is therefore a reasonable supposition, that if respiration has ceased during three, or at furthest four minutes, life is irrecoverably lost.* It is probable that something depends on the *temperature* of the water. An animal immersed in a freezing mixture, but with the respiratory organs free, speedily dies. This suggests the important practical inference, that during the state of asphyxia the body is to be kept in a warm atmosphere : and here we may observe how closely the dictates of science correspond with those of common humanity.†

* Dr. Davy informs me, that he has not been able to recover dogs that have been under water *two* minutes, even by means of artificial respiration and galvanism employed immediately. " This result corresponds with the observations of the most experienced men of the present day. The fine tales circulated on the subject of oxygen gas, nitrous oxide, and galvanism, have all disappeared : they have no power in resuscitating animals. Resuscitation by any of the usual means after three minutes, and often only one, is impossible."

† [In recent cases, which of course are only the subjects of inquiry, it has been considered that the fluidity of the blood is a probable evidence of the possibility of restoring life. As it occurs in death from other causes, and it is not true that the blood is always fluid in suspended animation from drowning, this sign cannot be depended upon. The flexible state of the joints is not a certain evidence of the possibility of recovery ; nor is the relaxation of the sphincter a certain sign of death. The morbid appearances observed after death from drowning, hanging, and breathing irrespirable air, are a turgescence of the veins going to the heart ; of the jugulars and the cavæ ; also of the right auricle and ventricle, and a flaccid and empty state of the left side of that viscus. The vessels of the brain are often, though not always, turgid ; the stomach often contains some water in those who are drowned ; as also the lungs, but very little.

It may be proper to state here the appearances observed after submer-

The application of artificial respiration in cases of pure asphyxia, holds out, in every point of view, a reasonable prospect of success; and that it has been effectual in restoring suspended animation, numerous observations concur to assure us. Bichat maintained, but apparently on theoretical grounds only, that this operation can never restore circulation that has once ceased; in other words, that it is effectual only in those instances where the heart still pulsates, though carrying on a circulation of venous blood. According to the statement of persons worthy of

sion. The body of the patient is livid, swoln, cold, relaxed; the head bloated; the face livid, leaden, violet, or black; the eyes flaccid, dim, and partly closed; the teeth set, mouth and nose covered with froth, lips livid and swelled; the tongue blue, swelled, or protruded; the chest raised; belly tense; pulse and beating at the heart gone; sense and motion also; and if sufficient time have elapsed, the limbs are generally stiff; and the spincter ani is mostly relaxed.*

If recovery takes place, it appears first in feeble, irregular, and convulsive efforts to breathe; with gasping, and spasmodic agitations of the limbs; the pulse beating at intervals, small, quick, and weak; water coming out in froth at the nose and mouth; these symptoms become gradually more marked, the skin becomes soft, vomiting sometimes takes place, and the patient gradually regains his powers of sense and motion; the silence, debility, dejection, and weakness generally continue; sometimes an epileptic fit, which not unfrequently carry off the patient.†

“The usual evidences of death are, cessation of the pulse and of respiration; which is known by the application of the flame of a taper to the nose, or by the condensation of the vapour of the breath upon the surface of a mirror held before the mouth and nose; or by placing a cup of water on the lower part of the breast bone, and observing the agitation produced on its surface by the motions of the chest.”‡ The body, however, may be rigid, cold, and livid; the face swoln, black, and cadaverous; the eyes glassy and clear, flaccid, heavy, dull, and fixed, the pupils dilated; the jaws and extremities rigid and inflexible, and the body universally cold, and yet recovery may take place,§ as cases actually prove.]

* Essay on Suspended Animation, by S. Colhoun.

† Ibid.

‡ Ibid. p. 14.

§ Ibid

credit, however, the action of this organ has been renewed by artificial respiration, after all marks of it had *wholly* ceased ; and here it is probable that the left side of the heart, which could no longer be excited to contraction by venous blood, was stimulated by blood which had become arterial during this process. Mr. Brodie has shown, that it will support circulation for many hours in small animals, even after the complete destruction of animal life by cutting off the head. We should thus be encouraged to persevere in its employment so long as any marks of pulsation in the heart remain, under the hope that the brain may gradually be restored from that state of *oppression* into which it was thrown by the influx of venous blood. Artificial respiration, therefore, appears well adapted to those cases of apoplexy succeeding asphyxia, to which I formerly referred. Reasoning from these principles, Mr. Brodie has conjectured, that artificial respiration might be successfully applied in the case of animation suspended by opium, woorara, and such other narcotic poisons as operate first upon the brain, and through it upon the respiration. Some experiments recorded in the Phil. Trans. for 1812, give countenance to this expectation. ‘The treatment of this variety is conducted by withdrawing the poison from the stomach with a tube and syringe, or by an emetic of blue vitriol, white vitriol, tartar emetic, or ipecacuanha ; by giving equal parts of sweet oil and milk ; dashing cold water in the face, or over the body ; with the other means used, as frictions, &c., under the head of suspended animation from drowning. See note below.’

From the preceding remarks, it will be obvious that artificial respiration is wholly inapplicable to those numerous instances of sudden death which *begin at the heart*. Scarlet blood is here already present in its left cavities, and means of relief for such cases, if any exist,

must be sought for elsewhere. In the same manner, it will not be difficult to convince the student how great is the danger which attends an indiscriminate employment of tobacco glysters and cold affusion. These have a direct power in checking the heart's action, and must, in a great majority of cases of asphyxia, be positively injurious. Galvanism holds out a better prospect of advantage; but the experiments hitherto made with the view of determining the kind and degree of influence which it possesses, are not sufficiently accurate to induce me to hazard any decided opinion of its value.

The opening of a vein has been frequently resorted to, both in the asphyxia of drowned persons, and in that which arises from the inhalation of carbonic acid gas. In the former case, if a flow of blood can be obtained, the operation may possibly be useful, by relieving the oppressed state of the heart and great vessels. In the latter case, great caution is required, as we may gather from the experience of Dr. Babington, recorded in the *Medico-Chirurgical Transactions*.* The remarks of this author on the state of asphyxia, and the remedies proposed for its relief, are well deserving the attention of the student.

[In resuscitating a drowned person, the body should be conveyed quietly, after being well dried and wrapped in blankets, to the place of operation: It should be laid on a bed, in a horizontal position; the room should be airy and ventilated; have a dry northern exposure; the temperature should be moderate, between 70 and 80 of Fahrenheit, and the body should be placed before a fire, or be enveloped with cloths wrung out of warm water, or immersed in sand, embers, or lees; or placed in a bed which may be heated by a warming-pan; or it may be exposed to the hot sun; or placed in a bed and surrounded by hot bricks, or bottles filled with hot water.

A machine has been invented by Dr. Harvey, of Manchester, for

* Vol. i. p. 83, "*Case of exposure to the Vapour of burning Charcoal.*" 1806.

communicating heat to the body; it consists of a hollow tin apparatus, in which the person is laid and filled with warm water: As water has a debilitating effect upon the system independently of the heat, this mode is not so desirable as that by heated air, or placing the body before a fire.

Inflation may be made by the mouth, blowing into the nostrils; a tube constructed out of a piece of the sole of an old shoe, or a piece of pasteboard, will answer equally well, securing them round with a thread; or the pipe of a common bellows may be inserted into one nostril whilst the other side is closed, and the cartilage of the trachea is pressed backward to prevent the air from getting into the stomach; emptying the lungs as they fill up, by pressure on the sternum; and opening the opposite nostril when the air is to be discharged: or the air may be passed through the valve of the bellows by raising it with the finger; and then, as soon as it has passed continuing the inflation.

The double bellows of Hunter will be found particularly useful for this purpose. They consist of a bellows which permits the air to enter at one nozzle and after it is respired to pass out at another.

About ten respirations will be sufficient; if they are numerous they exhaust the heat of the body; if too few, they do not oxygenate the blood. Great force must be avoided in inflation, as the air will be forced through the cellular texture, and pass into different parts of the body: In recovering it might produce apoplexy, as a deep inspiration often has this effect even in healthy subjects.

It has been recommended to pass the air into the trachea through a gum elastic tube fixed to a bellows: It must be introduced by passing through it a crooked wire, bent as usual in introducing a sound into the urethra. It is then run down into the œsophagus below the glottis; then drawn back in the middle line of the throat; when it easily slips into the opening of the trachea. The inflation is then continued with Hunter's or a common bellows.

If it be impossible to introduce the tube, then bronchotomy must be immediately performed; a longitudinal incision must be made between three or four rings below the cricoid cartilage, and the head kept erect to prevent the blood from flowing into the wound; avoiding at the same time the superficial veins.

With regard to the use of galvanism and electricity they promise very little, and from the most enlightened experience of the present day, it is certain that they rather tend to exhaust than to renew the power of the heart.

The application of tourniquets to the extremities, by suppressing the current to the limbs has been found useful: In my experiments it pro-

noted the circulation : It operates by rendering a more limited power of the heart necessary from the diminished range of the blood.

Frictions with flannel, with the hand moistened with lard or oil, avoiding great pressure on the bowels, are useful : whipping with rods has recovered one patient : Ley, caustic, volatile alkali, sal ammoniac, and oil of vitriol, have also been used for exciting the skin ; they are improper, as they are too irritating, destroy the surface, and if recovery takes place produce bad ulcers.

Spirits of turpentine alone, or boiled over cantharides, may also be used ; the room should be well ventilated, as if the patient has an idiosyncrasy with regard to these substances, they may do harm.

Volatile liniment, made of equal parts of volatile spirits of hartshorn and sweet oil, is perhaps the best application.

As the vapour of vinegar applied to the conjunctiva rouses from syncope, and volatile alkali to the inside of the nose is also a powerful stimulus, they may also be useful. Plucking the hairs, tickling the soles of the feet, the sides, and the armpits, the application of acrid substances to the tongue, as the juice of onions, or mustard will, after resuscitation has commenced, assist in expediting it : Some gentle stimulus, as the essence of peppermint ; oil of mint injected into the stomach, will be likewise useful as soon as the patient begins to recover : Laudanum will tend rather to paralyze than to stimulate the system.

The use of tobacco in injection, both by driving up the smoke through the bowl of a common pipe applied to the mouth, the stem being introduced into the rectum, or by a light infusion of the leaves in hot water, (3i. to a pint,) thrown up into the gut by a common syringe, has certainly a highly stimulating effect upon the intestines, as appears from the experiments of Legaré ; but as it is a noxious agent, and might destroy the feeble remains of returning life, it had better not be used at all. Emetics are for the same reasons improper. Venesection, by unloading the vessels of the neck and face, may be of use ; its influence on the general system is otherwise very slight. With regard to the effect of the transfusion of blood, it has been conjectured that 8 or 10 oz. of blood injected into the jugular will have a good effect : but as it is satisfactorily proved that the right auricle and ventricle in these cases are already too much distended, and do not move partly from that cause, it is evident that a further distension of them would only increase the obstacle to their motion.

Asphyxia from hanging is treated in the same way : Bacon records the history of a person who said that he could revive patients by tepid baths and frictions, provided they had not been hung longer than half an hour ; and provided their necks had not been dislocated.

Sometimes children are suffocated in bed by cats lying upon their mouths : The remedies in this case are the same as from drowning.

Asphyxia from noxious vapours is best treated by the use of cold water sprinkled on the face, or let fall from a height ; frictions of snow or ice over the body, with the means above recommended.

Asphyxia from cold is also to be treated by rubbing the body with ice or snow, or putting it in ice cold water till the symptoms of recovery begin to appear ; and then raising the temperature very slowly and gradually. As hunger often concurs with cold to debilitate the powers of life, nourishing substances should be gradually administered : Warm barley-water, or warm whey, will be best given first. In Russia the excessive use of ardent liquors often combines with cold to hasten dissolution ; they should therefore be always avoided, as tending to debilitate.

When parts become black from mortification by cold, rubbing them with goose-grease, often repeating it, is said to have had the most beneficial effect in restoring them : I have seen lead water poured over the feet very useful : Applying ice cold water is generally the most convenient remedy.

Asphyxia from fevers is best treated by giving freely of Madeira wine, or some stimulating cordial, as volatile alkali, &c. with inflation of the lungs, frictions, &c. as above directed.

Asphyxia from lightning is best treated by gentle bleedings, or dashing water over the face ; a warm bed ; inflation ; strong frictions ; with cooling medicines, and antiphlogistic means to remove any fever. Trees, pallisadoes, metal conductors, as spouts, bell-wires, &c. should be avoided during a thunder storm.

Asphyxia from pressure of the umbilical chord is treated by holding the child before a fire and chafing it gently, applying brandy to the stomach, and inflating the lungs occasionally for half an hour : The use of ammoniacal vapours are dangerous, and should be avoided : A current of cold air or cold water sprinkled over the body has been useful, but more particularly where asphyxia has resulted from smothering the child under bed-clothes.]

CLASS III.

CHRONIC DISEASES OF THE CHYLOPOIETIC VISCERA.

CHAP. I.

DYSPEPSIA.

Frequency of dyspeptic Complaints—Symptoms of Dyspepsia—Physiological Considerations connected with Digestion—Dyspepsia, primary and secondary—Exciting Causes of primary Dyspepsia—Sympathies of the Stomach—Varieties of secondary Dyspepsia—Prognosis—Principles of Treatment—Diet, Regimen, and Medicines—Other morbid Affections of the Stomach—Spasm—A State of continued Vomiting—Scirrhus Pylorus.

INDIGESTION is certainly the most frequent of all diseases. It is met with in every country, in every class of society, in every season of the year. Devoid of the danger which attends other diseases, it is nevertheless equally distressing to the patient, poisoning all the sources of his enjoyment, and leading, in many instances, to the miseries of confirmed hypochondriasis. Long as it has been made the subject of inquiry by medical authors, it

remains involved in much obscurity. The pathology of the disease is little understood; the method of its treatment is still imperfectly known; and the most remarkable diversities of opinion are entertained regarding the extent to which it influences the production of other disorders. On these various accounts, indigestion may justly lay claim to a full and accurate investigation.

By dyspepsia, in its most precise sense, physicians understand that state of the stomach, in which its functions are disturbed, without the presence of any other disease. In practice, however, it will be found impossible to restrict the meaning of the term within such narrow limits. The stomach being one of the great centres of the system, its functions are more or less disturbed in every disorder to which the human body is subject; and thus to confine the acceptation of dyspepsia, would be to presuppose our knowledge of the diagnostic features of many very obscure forms of disease. It will be sufficient, therefore, to limit the term dyspepsia to those cases in which the functions of the stomach are impaired, without the presence of well-marked general fever, of local inflammation in the organ itself, or of any very obvious *cognizable* disease in a distant part. So far from indulging a too strict adherence to nosological accuracy, it will be advisable to acknowledge a distinction between *primary* and *secondary* dyspepsia. In the latter case the dyspeptic symptoms, though in reality secondary, yet often occupy the first place in the mind of the patient, those of the distant organ being either very obscure, or but little troublesome, or manifesting themselves only in the *progress* of the disorder.

The symptoms of dyspepsia are extremely diversified. They may be divided into such as are referable to the stomach itself, or to its sympathies with other parts of the body. Among the first may be enumerated loss of ap-

petite, nausea, pain in the epigastrium or hypochondria, heartburn, a sense of fulness, distention, or weight in the stomach, a feeling as if a ball was lodged in the œsophagus, acid or fœtid eructations, pyrosis, or the vomiting of a clear liquor, often in vast quantity, and lastly, a sensation of *sinking* or fluttering at the pit of the stomach. To the second head of dyspeptic symptoms may be referred, among many others, costiveness, or an irregular state of the bowels, with a morbid appearance of the evacuations, pain of the back and turbid urine, a disagreeable taste in the mouth, especially on first waking, toothache—palpitation, pulsation in the epigastrium, irregularity of the pulse, a short dry cough, and occasional difficulty of breathing,—giddiness, and headache, sometimes referred to the fore, but more commonly to the back part of the head,—languor, lassitude, and great depression of spirits, with fear of death, or of impending evil.

The tongue is very generally referred to as affording evidence of the state of the stomach; but it will often be found that the tongue is perfectly clean when the stomach is most incontestably disordered. It would seem, indeed, as if the morbid appearances of the tongue (its fur, dryness, præternatural redness, and smoothness, and its chopped aspect) are referable to the state of the constitution rather than to any particular derangement in the stomach. When, however, we observe the tongue *furred and moist* (its true character in common dyspepsia,) that is to say, when the secretions of the mouth are depraved, we may reasonably presume that there exists a similarly disordered state of the *secretions* of the stomach.

In adults, dyspepsia frequently leads to a state of ephemeral feverishness. In infants this is very commonly observed, and it often increases to a state of high and formidable excitement. Very anomalous pains sometimes

arise from simple dyspepsia, but these it is obviously impossible to specify.

In order to form a just idea of the connexion of these various symptoms with a disordered state of the functions of the stomach,—to illustrate the modes in which the several exciting causes of the disease, hereafter to be mentioned, operate,—still more with the view of explaining how dyspepsia becomes so frequently a concomitant or cause of local disease in a distant part, we must advert to a few facts connected with the physiology of the stomach.

There appear to be three important stages in the process of digestion. The first of these is an intimate mixture of the food with certain *fluids* of the body, particularly the saliva, and secretions of the stomach. It is probable that these have a higher office than merely lubricating the coats of the first passages, and moistening the morsel of food ; but physiologists are not agreed as to their exact operation. The notion of a *chemical* solution of the food in the gastric juice, is still entertained by some ; but it is at variance with the results of chemical analysis. It is not unreasonable to believe, that the animal fluids act to a certain degree as *ferments*, approximating the food taken in, to their own nature, by means peculiar to the operations of life ; but analogous, as we may presume, to some acknowledged chemical phenomena.

The second important step in the function of digestion is the detention of the food for a certain length of time in the cavity of the stomach. In this stage of the process the food is brought by degrees into contact with its coats, and exposed to the influence of its *nerves*. Here that peculiar vital action is exerted upon the food which renders digestion so totally different from a chemical operation, and which actually suspends ordinary chemical

agency. In this stage of digestion too it appears that the food is reduced to its proper consistence as to *fluidity*, the absorbents of the stomach rapidly removing any superabundant fluid, and thirst being excited when the gastric secretions are insufficient for the due moistening of the mass.

The third step in the progress of digestion is the propulsion of the chyme into the duodenum, where it becomes mixed with the bile and pancreatic juice. The length of time which the aliment remains in the stomach has never been very accurately determined. It probably varies in different individuals, according to the *energy* of the stomach, and in the same individual at different times, according to the nature of the food, and its greater or less facility of digestion. From three to four hours is probably the average. Further, it does not appear to be very well known (at least in man,) whether during the *whole* of this time the pyloric orifice is closed, dilating at last to let the entire mass of food pass at once into the duodenum, or whether it dilates and contracts at intervals. In the duodenum the chyme certainly remains a considerable time, and changes there take place in it which are necessary to the full completion of digestion. The important influence of this organ has procured for it the appropriate name of *ventriculus succenturiatus*.

From this brief statement of the steps in the progress of digestion, we shall be prepared to give an explanation of the several modes in which dyspepsia may be brought about.

1. It may depend, in the first place, upon a morbid state of the *glands* subservient to digestion. The saliva may be deficient,—the gastric juice may be either deficient, or secreted in too large quantity, or vitiated in quality, whereby the coats of the stomach become enveloped

with a thick tenacious mucus.* Lastly, the bile may get into the stomach, and there interfere with the first steps in the digestive process.

2. Dyspepsia may arise from a morbid condition of the *nerves* of the stomach, or from general torpor, or defect of the whole nervous system.

3. Dyspepsia may in some cases be owing to such morbid states of the *muscular* coat of the stomach as cause the food to be detained too long there, or which hurry it too soon into the bowels.

4. Dyspeptic symptoms, lastly, may originate, independent of all disease in the stomach, from the functions of the duodenum being imperfectly performed. Morbid accumulation in the duodenum is justly reckoned the immediate cause of that pain high up in the back which sometimes accompanies, but is often observed independent of the more common dyspeptic symptoms.

All practitioners must acknowledge the necessity of distinctions among the numerous cases of dyspepsia; but great difficulties have been experienced in establishing any which may have a practical application. Dr. Pemberton† attempted to found a division of dyspeptic cases upon the *pathological considerations* which I have just adverted to; but though we may acknowledge, in theory, an independent affection of the *glands*, the *nerves*, and the *muscles* of the stomach, yet, in practice, it will be found impossible to trace their diagnostic symptoms, or to ground upon such views any important differences of treatment.

* This appears to take place in some cases of dyspepsia connected with pregnancy, but certainly not in all. Occasionally such a state of the stomach would seem to depend upon a low degree of inflammatory action.

† Practical Treatise on various Diseases of the abdominal Viscera. 1814, p. 99.

The older nosologists almost uniformly agreed in looking upon *symptoms* as the best groundworks of distinction among dyspeptic cases, the most prominent being pain, vomiting, loss of appetite, and flatulence. Hence the division of the disease into gastrodynia, pyrosis, anorexia, and flatulentia. Such distinctions, however, are little calculated to guide us even in the employment of measures of temporary relief. As indications for the permanent cure of the disease, they are wholly useless. With a view to practice, I have always felt the absolute necessity of paying attention to the *causes* of the affection, and there can surely be no better basis of distinction, than such as is fitted to facilitate treatment.

The predisposition to dyspepsia may be discussed in a few words. There are undoubtedly persons who possess, and perhaps even inherit, *constitutional weakness* of stomach; but such cases are not common, and may without impropriety be discarded from our present consideration. It remains, then, only that the *exciting* causes of the primary form of dyspepsia be enumerated, and the following will, I believe, be found the most important.

Tabular View of the Varieties of primary Dyspepsia.

1. Dyspepsia from occasional overloading of the stomach.
2. ——— from habitual overfeeding.
3. ——— from habitual indulgence in spirituous liquors.
4. ——— from want of air and exercise.
5. ——— from excessive or long-continued evacuations.
6. ——— from anxiety of mind.

1. The first and most simple cause of dyspepsia is the occasional *overloading* of the stomach; or the taking in of some indigestible substance, which, even in small quantity, offends the nerves of the stomach, such as tainted meat; or, lastly, an accidental debauch of wine. This

form of dyspepsia is commonly attended with a sense of oppression at the stomach, and that peculiar species of headache called the *megrim*. It is carefully to be distinguished from every other, because it demands a particular mode of treatment.

2. The second cause of dyspepsia is habitual full living, particularly the too *frequent* indulgence in animal food. This is one of the most common sources of dyspepsia in the upper classes of society, and is easily distinguished from all others by its occurring along with *gout*.

3. The third is the abuse of spirituous liquors. This is the prolific source of dyspepsia in the lower ranks of life, in comparison with which all the other causes of the disease are of little importance. Dyspepsia from this cause is often a very *severe*, and always an obstinate complaint. It is attended in most cases with a very acute pain in the region of the stomach, (gastrodynia,) and tenderness of the epigastrium. It may be distinguished also by the trembling hand, which never fails to accompany it. This and the preceding form of dyspepsia, may so far be considered as connected, as the remedy for the disease is in both cases obvious; and as any plan of treatment which does not make the removal of the exciting cause an indispensable condition, will be either ineffectual, or serve only in the end to aggravate the evil.

4. The fourth cause of the disease is the want of air and exercise. Torpor and inactivity of the body naturally extends its influence to internal organs, and the stomach is the first to suffer. Hence it is that dyspepsia is the frequent concomitant of a sedentary profession, and that it prevails not only among the luxurious and dissolute, but amongst the most industrious and sober classes of the community. Distention of the stomach by wind, particularly after meals, eructations, and a torpid state of

the bowels, usually prevail in this form of the complaint. To a certain extent it admits of relief by remedies, but the least irregularity of diet is often sufficient to renew the unpleasant symptoms.

5. Another cause of primary dyspepsia may be found in excessive evacuations, such as flooding, and large bleedings at the arm ; or in more moderate evacuations, if long continued, as for instance, leucorrhœa, or protracted suckling. The practice of keeping strong children at the breast for a year and a half or two years is very common in the lower orders in this country, and leads, particularly in weak habits, to some of the most distressing forms of dyspepsia which are ever witnessed. The peculiar characters of this variety of dyspepsia are a sense of *sinking* at the pit of the stomach, giddiness, dimness of sight, a feeling of different objects dancing before the eyes, and a *small*, often *imperceptible* pulse. It admits of very essential relief from medicine.

6. The last source of primary dyspepsia which requires notice, is mental emotion, particularly the depressing passions, fear, grief, but above all *anxiety*. This, though very common, can only so far become a practical consideration, as it may lead to the propriety of recommending, in some cases, change of air, and scene, and habits.

The various *sympathies* of the stomach have frequently been described, and every one is sensible of the intimate connexion of dyspepsia with local disease in other parts. In many of these instances the affection of the stomach has been viewed as the primary complaint, upon the principle that such states of local disease are best combated by remedies which *apparently* act on the stomach. It has been well observed, however, that when a disordered state of the digestive organs, and local disease in a remote part, are concomitant, they may be but effects of some distant and unknown irritation, perhaps proceeding from

the nervous system. The medicine therefore which *appears* to act beneficially on the local disease, through the medium of the digestive organs, may in fact operate by correcting that more *general* derangement of the health, of which disorder of the chylopoietic viscera is but one of the effects.

Tabular View of the Varieties of secondary Dyspepsia.

1. Dyspepsia, symptomatic of general feverishness.
2. _____ of habitual constipation.
3. _____ of chronic disease of the liver.
4. _____ of chronic disease of the spleen.
5. _____ of functional disturbance of the uterus.
6. _____ of obscure disease of the kidney.
7. _____ of chronic affections of the bronchia.
8. _____ of chronic cutaneous diseases.

1. Dyspepsia proves in many instances the *leading* symptom of general though slight feverishness. It may usually be distinguished by the thirst, restlessness, and white tongue which accompany it. Cold frequently shews its deleterious influence on the body by disordering the functions of the stomach. Hence it happens, that dyspeptic ailments are so frequent when winter first sets in. 2. Habitual costiveness is not unfrequently the occasion of dyspeptic symptoms. The circumstance will, in general, be easily ascertained by the inquiries which in every case of dyspepsia should be made into the present and *previous* state of the alvine evacuations. The student will, however, remember that the functions of the stomach and bowels are different, and that these organs may be either separately or conjointly affected. 3. In some cases dyspepsia will be found dependent upon chronic diseases of the liver; but assuredly not to the extent which is frequently imagined. When a defective or vitiated state of the bile, that is to say, *functional* distur-

bance of the liver, exists; still more when structural disease of that organ is present, accurate investigation will commonly lead to the detection of some of those symptoms which were formerly enumerated as *characteristic* of hepatic affections. 4. There can be little doubt, that dyspepsia is, in certain instances, symptomatic of an affection of the spleen. It would be contrary to all analogy to suppose that this organ is not subject to some primary forms of disease; but very little appears to be known concerning them. Dr. Bree has described an affection of this kind,* which he imagines to consist in a *congestive* state of the vessels of the spleen. It is probable, that an acquaintance with the physiology of the spleen might enable us to separate and refer to their true source many other cases now classed under the general head of dyspepsia. The peculiar symptoms of *splenic* dyspepsia, as far as I have been able to trace them, are fulness and sense of weight in the region of the spleen (without corresponding flatulence,) a sallow countenance, and occasional hæmorrhages. It chiefly occurs in young women, particularly such as have over-exerted themselves, and is very obstinate and difficult of cure. 5. Dyspepsia is a frequent concomitant of disturbance in the uterine functions. It is a leading symptom in chlorosis and hysteria, and is well known as one of the earliest evidences of pregnancy. This form of the disease is easily distinguished from all others by the *habit of body* in which it occurs. Vomiting of the food half an hour after it has been taken (marking the great degree of irritability prevailing in the stomach) will generally be found characteristic of *uterine* dyspepsia. 6. Indigestion is a well-marked symptom in diseases affecting the kidney, the local

* Medico-Chirurgical Transactions, vol. ii. p. 84, On painful Affections of the Side from tumid Spleen;” also vol. iii. p. 155.

evidences of which are very obscure. Hence it is that the original complaint is so often overlooked; but the error is fortunately of no material importance. 7. The functions of the stomach are frequently impaired in chronic affections of the bronchia, and this complication of disease is very formidable, particularly in old people. 8. A remarkable connexion has long been observed, between dyspepsia and several varieties of chronic cutaneous disease; but this is chiefly deserving of notice, as it bears upon the pathology of the latter affections.

Such are the most important distinctions which I have been enabled to trace among the several kinds of dyspeptic complaints. Their variety may, perhaps, at first, occasion some embarrassment to the student; but experience has assured me, that an imperfect investigation of the subject would be productive even of greater difficulties. Before entering on the treatment of dyspepsia, a few observations may be useful with reference to prognosis.

In all forms of dyspepsia the prognosis is favourable; even though of very long continuance it does not appear to induce any serious or permanent mischief. In particular habits it gives rise to, or aggravates, calculous disorders; but there seem to me no just grounds for the notion entertained by a late author,* that it lays the foundation of *organic* diseases in distant parts, particularly in the lungs. The view which has been taken of its exciting causes will show that some cases admit only of temporary relief, but by far the larger proportion of dyspeptic patients may, by moderate attention to diet, medicines, and the regimen of mind and body, be permanently and effectually cured.†

* Dr. Wilson Philip, in his Treatise on Indigestion and its Consequences." London, 1821.

† [When the disease originates from that of some neighbouring organ.

It is unnecessary to say, that there is no one drug which will fulfil the great object of treatment, that of giving *tone* to the weakened stomach of a dyspeptic patient. This can be obtained only by measures calculated to avert the *cause* which may have excited the disease. The tone of the stomach never fails without some *assignable* reason, which strict inquiry will detect, and the knowledge of which will point out the proper means of relief. Nor is it often that these will fail of success, provided the patient have sufficient firmness to submit to them, and afterwards remain sensible that his health is in his own hands. The assistance of the physician, however, is very often required where the patient either *cannot* or *will not* submit to the measures which prudence dictates. In such circumstances we must endeavour to aid the digestive process by *medicines*; but I would wish to impress upon the student the impropriety of trusting to them in dyspeptic cases. He should remember, that almost any drug will injure digestion in a healthy state, and he should learn therefore to be sparing of medicine when the stomach is weakened by disease.

In every form of dyspepsia attention to diet is *indispensable*, and the patient must have regard, not to its quality only, but to its quantity. In a weakened state of the stomach it must have little given it to do. The body is strengthened, not in proportion to the quantity of food

as of the spleen, or liver, or from a schirrous or ulcerated state of the pylorus, or when from its long continuance a state of permanent debility has been induced ending in dropsy, the prognosis is unfavourable, and the prospect of recovery is very slight.

Where the disease has arisen from habits of drunkenness the probability of recovery is also slight, from the difficulty of overcoming the cause which has produced it: more particularly, as, in these cases, indurations of the liver and spleen attend, and the interior surface of the stomach is covered with fungous processes.]

taken in, but to that which is *thoroughly* digested. Differences in the habits of life will of course lead to important differences in the *kind* and quantity of diet which should be permitted to a dyspeptic patient; but the following may be regarded as rules of very general application. It should consist in a due mixture of animal and vegetable food, but the former should be eaten only *once* a day. It should be thoroughly masticated. Great varieties of food at any one time should be prohibited, as leading to an indulgence of the appetite beyond the wants of the system. 'Restriction to one article of diet alone will be found most proper in all cases of weakness; for the expenditure of animal power is much less, when one article is only presented to the organs of digestion. This observation is invaluable to the dyspeptic, the consumptive, and to all persons who labour under any chronic disease.'

Articles of difficult digestion should be carefully avoided; such as all kinds of smoked, hard, dried, salted, and very fat, fried, and long-kept meat; all those dishes where too much nutritious matter is collected in a small space; eggs, for instance, potted meats, strong soups, and preparations of suet, fat, and butter; lastly, all raw vegetables whatever, with the exception of ripe fruits.* Re-

* [Common fowls (particularly the thighs,) are considered as among the most digestible articles of food; venison is perhaps the next; then the flesh of the ox, sheep and hare, and rabbits; then of the goose and duck, and next the oyster, and lobster, and fish of different kinds. Young and white meat is generally more indigestible than that which is brown and of middle age. New bread is very indigestible. Prepared from flour, from which the bran has not been sifted, it has a laxative property, which renders it valuable: in that state, it is a most excellent substitute for the ordinary bread. Crackers are objectionable as they produce costiveness. Independently of this quality they will be found to be easily digested.

The crust of bread, and toasted bread are digestible. Rice is also

gularity in the hours of meals should be rigorously enjoined, and the patient directed to abstain from food at *all other times*.

Of the necessity of regular exercise to the due performance of the functions of the stomach, every one must be fully sensible. Walking is of all exercises the best. It is that which nature intends for us, and can never be compensated by what have been called the *passive exercises* of the luxurious. 'The system must be invigorated by living in a cool, airy, healthy situation, and by going early to bed and rising early. Crowded rooms, the contaminated and noxious air of cities must be avoided; and every thing which can encourage and invigorate the mind, and banish gloomy thoughts or care, must be sought. The dress should be warm and comfortable, and adapted to the changes of the weather. Sea bathing, or the shower bath are often serviceable.'

The medicines which have chiefly been recommended in the treatment of *primary* dyspepsia, are emetics, purgatives and laxatives, bitters and stimulants, absorbents, mercurial alteratives, and nervines. I proceed to point out to what cases each of these classes of medicines applies, and upon what principles they may be supposed to act. Much of what is important in regard to treatment resolves itself into the avoiding of exciting causes; but it

so. Farinaceous substances, in the form of puddings, are proper. Salt and vinegar as condiments are the best assistants of the digestive process. To conclude, cocoa, cream, weak tea, with bran bread or crackers, will form a good breakfast and supper: mutton, fowls, or beef, broiled, a good dinner.

With regard to vegetables, they should be well boiled and taken sparingly; the waxy potatoe is very indigestible and should be avoided altogether. Little should be taken at a time and about three or four times in the 24 hours, and never so much as to excite the feeling of distention.

Toast and water is a good drink, and such wine as agrees with the digestion.]

is necessary also to keep in view the duration of the disease, or the difference between *occasional* and *habitual* dyspepsia. Lastly, attention is to be paid to the degree of *strength* in the patient's general habit.

1. In the *acute*, or occasional dyspepsia, the object is to free the stomach at once from offending matters, and afterwards to permit it gradually to recover its tone. Where full vomiting has not taken place by the efforts of nature, the following emetic draught—

R. Pulv. ipecac. ℥i.
Aq. menth. sativ. 3x.
M. f. haust.

may be given, followed the next morning by a purging mixture.

R. Inf. senn. compos. 3x.
Magnes. sulph. ʒii.
Tinc. senn. ʒi.
Syrup. ʒi. m. f. haust.

This is one of the few cases of dyspepsia to which emetics are applicable. Their frequent use is much to be condemned, as weakening the tone of the stomach, and ultimately increasing the disease.*

2. Occasional brisk purgatives, such as the draught now recommended, or the following, containing rhubarb—

R. Rhei. ℥i.
Potass. sulphat. gr. xv.
Aq. menth. piperit. ʒss.
M. f. haust.

Or this powder—

R. Hydrargyr. submuriat. gr. iv.
Pulv. ipecac. gr. ii.
M. f. pulv.

* [Dr. Eberle in his *Materia Medica* states, that they are particularly useful in the general distress, numbness of the scalp, violent colic, acute pain in the side and bladder, and vertigo, which often attends indigestion.]

And pills—

R. Hydrargyr. submuriat. gr. iii.
 Pulv. antimon. gr. iv.
 Extr. colocynth. comp. gr. iii.
 — hyoscyam. gr. ii.
 Tere diligenter et forma in pillulas duas.

will be found highly advantageous in dyspeptic cases which are not of long standing, and which occur in persons of robust habit. An ounce of Epsom salts, or the following draught—

R. Aq. menth. piperit. sesunc.
 Magnes. sulphat. ʒvi.
 Conserv. ros. ʒi.
 M. & cola. fiat haust. aperiens.

is often sufficient to carry off a mild attack of the complaint. Where any considerable degree of feverishness exists (provided the stomach be not *irritable*,) much advantage will be derived from the following strong cathartic powder :

R. Hydrargyr. submur.
 Pulv. antimon. sing. gr. v.
 Hydrargyr. sulphuret. rub. gr. i.
 M. fiat pulv. cathart.

Calomel, as a purgative, is well adapted to *sudden* attacks of dyspepsia in persons not habitually liable to it. In weakened habits it frequently irritates the stomach and aggravates the symptoms.

3. Laxatives in small doses, just sufficient to keep up a gentle peristaltic motion through the whole alimentary canal, are highly serviceable in *common* or habitual dyspepsia. Rhubarb in conjunction with an aromatic, given a short time before a meal, is useful to persons of weak stomach and sedentary occupation, by preventing a lodgment of food in the stomach and duodenum after the first processes of digestion are over.

Pulv. rhei. gr. ii.

—— capsic. gr. i.

Extract. anthemid. q. s. ut fiat.

Pilul. to be taken at noon or before dinner.

With the same view the following tonic aperient draughts may be administered :*

R. Decoct. aloes. compos. 3vi.

Aq. cinnamom. 3iv.

M. f. haust. omni merid. sumend.

R. Infus. gentian. compos. 3v.

Aq. cinnamom. 3iii.

Carbon. sod. gr. x.

Rhei. pulv. gr. ii.

Spirit. lavandul. comp. 3ss.

M. f. haust. bis die sumend.

‘ A regular visit to the privy, continued every morning for a month, will overcome a costive habit, and at length render unnecessary the use of aperient medicines.’

4. Bitters, astringents, stimulants, and other medicines, known under the general denomination of tonics, have been extensively employed in cases of dyspepsia; but they too frequently disappoint the expectations of the physician. ‘The bark, quassia, columba, cascarilla, and gentian, are the most useful.’ It must be recollected, that even the lightest bitters (camomile, orange-peel, or gentian) are stimulant and *heating*, and therefore wholly inapplicable to those numerous cases of dyspepsia which are connected with a *feverish* and *irritable* habit of body. Bitters are adapted to those forms of dyspepsia in which

* [The exhibition of small doses of ipecacuanha in the quantity of a grain or two in the morning, as recommended by M. Daubenton, deserves a trial. In that dose it will excite too much nausea to be proper; its virtues appear to be only those of a laxative. It has been much celebrated in France; but in England its success has not been so decided.]

the tone of the stomach has been weakened by previous disease, or by long and severe evacuations.* In that kind of dyspepsia which arises from the habitual use of spirituous liquors, bitters are sometimes borne, but the gentler stimulus of an acid is often preferable.† In that species of dyspepsia which occurs in women who have suckled an infant too long, recourse must be had to the more powerful of the class of tonics. The *mistura ferri composita* in doses of ten drachms three times a day is very efficacious. Bark and the aromatic confection may be substituted, as in the following—

R. Decoct. cinchon. 3x.
 Confect. aromat. ℥i.
 Tinct. cinchon. composit. ʒi.
 M. sum. haust. quart. quaq. hor.

The volatile alkali is useful under the same circumstances, and may be administered in the following form—

R. Infus. cascarill. ʒviii.
 Ammon. subcarbon. gr. v.
 Confect. arom. gr. x.
 Spt. armorac. compos. ʒii.
 M. fiat haust. ter die sumend.

Where great languor and the feeling of sinking at the

* [The bark of the poplar, or the *liriodendron tulipifera*, is mentioned in the work of W. P. C. Barton on *Veg. Mat. Med.*, as having been useful in dyspepsia.‡]

† [Acids are proper in various forms of this malady; it is, however, very difficult to determine exactly their precise application; like diet, and indeed medicine, it must be left to trial. The sulphuric acid, of all others appears to be the most generally beneficial; the nitric I have seen very useful; the oxymuriatic acid has also done much service. With regard to the vegetable acids, the citric and the acetic, their virtues, though mentioned favourably by Good, are very doubtful; vinegar in some cases unquestionably is valuable.]

‡ See vol. i. p. 109.

stomach are very urgent, we may direct a tea-spoonful of these cordial drops to be given occasionally ;

R. Spirit. ammon. aromat.
 ———— lavendul. compos. a ʒi.

M.

Take a dram in water when the patient is languid.

Or, without the formality of a prescription, some ginger may be taken at the time of meal.

‘The capsicum is a valuable tonic and stimulant ; it is more particularly useful in the languid digestion of persons who have been intemperate. Garlic, camphor, and assafœtida, are also sometimes given with effect.’

The power of any stimulant in promoting digestion *to a certain extent*, is well known, and may legitimately be turned to advantage in the treatment of dyspepsia.*

* [The proper drink for dyspeptics must be determined by their own experience : Wine will often be found to create acidity ; Madeira or Sherry are of all others the least liable to do so : Brandy and water, in case these wines should disagree, should be tried. The quantity of liquids taken, particularly at and immediately after meals should be small, and if necessary repeated more frequently.

The common hop is often valuable in allaying the symptoms of dyspepsia. Its tonic, anodyne, and stimulating qualities make it useful for this purpose. The rhatany root, so much praised in dyspepsia, has not answered the expectations of its friends.

The tepid bath, from 90° to 98° every other day, is often valuable in relieving the uneasy feelings so common in this disease. Various mineral waters have been recommended, and they are undoubtedly very efficacious ; where they have a gentle tonic combined with a purgative quality they are useful : the exercise and amusements, constant engagements, new faces, gaiety, and freedom from care, which prevails at watering places, do great good in these diseases. As to the waters they have no specific effect ; they do good by producing a spontaneous diarrhœa, or exciting the tone of the stomach : In this country, the waters of Bedford, in Pennsylvania, and Saratoga, to the eastward, are among the most celebrated. In England, those of Bath and Buxton enjoy the greatest reputation : Those waters which are impregnated with carbonic

5. Absorbents, as lime-water, magnesia, and the carbonate of soda, 'chalk, soap, and carbonated soda water,' may be combined with other medicines, where heartburn and acid eructations are particularly distressing; but it must be remembered, that their good effects are always transitory, and often precarious, and that they can never be relied on for the *permanent* removal of the disease.*

R. Infus. gentian. compos. ℥ii.

Liquor. Calc. ℥iiiss.

—— Potass. ℥iss.

Tinct. cardamom. compos. ℥iii.

M. fiat julep.—Take three table spoonsful twice a day.

6. Mercurial preparations are frequently resorted to in

acid, as the artificial seltzer water, and soda water, are essentially useful.

The stimulating and aromatic oils have generally the effect of rousing the languid powers of the stomach; of these the lavender, spear-mint, penny-royal, anise, dill, fennel, coriander, rosemary, and juniper, are the most celebrated: Pimento, nutmeg, cinnamon, cardamoms, and cloves, from their exciting quality, are also useful; from possessing the same virtues as the aromatic oils they may be used in combination with the bitter and stimulating medicines above mentioned: Dr. Flint used the spirits of turpentine with great success as an assistant to Abernethy's plan of the blue pill, and bitter teas.

The cubebs in the dose of ℥ii. to a dram taken twice a day, are highly praised by Mr. Fosbrooke.]

* [The use of chalk should be indulged in with caution; as it forms large concretions in the bowels from its union with mucus: Magnesia is liable to the same objection: They form with the acids of the stomach salts of different qualities; the chalk, as has been said, a substance which produces an astringent effect; and magnesia a laxative: As, however, the acids found at different times in the stomach differ in their nature, being either the lactic, the acetic, or the phosphoric, this opinion of course is doubtful.

The use of opium in small doses, is highly recommended by Dr. Eberle, in his valuable book on the materia medica: Its good effects are principally evinced in allaying pain, which it will do in small doses of two or three drops, repeated frequently through the day: Wilson Philip also bears testimony to the value of this practice.]

simple dyspepsia, not as purgatives, but in small doses for their specific, or, as it is said, *alterative* effect upon the secretions of the body. Three grains of the blue pill, given at bed-time, certainly prove serviceable in many obstinate cases; but it is difficult to define under what circumstances such a plan of treatment is *essentially* required, or on what *well-ascertained* principle it operates.*

7. There are, lastly, certain medicines employed for the cure of dyspepsia, whose agency is very obscure, and they may be classed together under the head of *nervines*. Of these I may specify the oxyd of bismuth, given in the quantity of five grains three times a day, with ten of the compound powder of tragacanth; and the sulphate of zinc in small doses. Opium is sometimes necessary where the stomach is very irritable, or where severe pain is complained of. I have never observed that it possesses that power of checking inordinate secretion of the gastric juice which Dr. Pemberton attributed to it.†

Such are the most important of the means by which we attempt to restore the *tone* of the stomach in *primary* dyspepsia. They are equally applicable to all the secondary varieties of the same affection; but are then, of course, to be adopted in union with other measures which the nature of the original disease suggests.

* [Mercurials are thought to be particularly valuable when the disease is complicated with affection of the liver: Small doses of calomel, given at night, and purged off next morning with a free dose of rhubarb, senna, or glauher salts, will be found to be useful.]

† [Blisters, applied to the stomach, are often useful by diminishing the cardialgia and vomiting.]

The gastric liquor of brutes has been given by an Italian physician with great success, after all other remedies have failed.‡]

As a sequel to this account of dyspepsia, I shall notice certain affections of the stomach, closely allied to it, but which appear to have something peculiar in their pathology.

1. Spasm of the stomach is a disease of very rare occurrence, but of formidable character. Its attack is sudden and attended with acute pain. It generally arises from some error in diet, and is, for the most part, connected with that ill-defined state of constitution, called the *gouty diathesis*. The remedies on which we are to place reliance, *in the first instance*, are ether, laudanum, wine, and aromatics, taken internally; and fomentations or stimulating epithems to the epigastrium.

2. Dr. Pemberton was, I believe, the first to describe a disease of the stomach, characterized by *incessant vomiting*, unattended by pain, or any symptoms of diseased structure in the organ itself.* It has frequently *proved fatal*, and the cause of the disease has remained, in many instances, undiscovered after dissection. I believe it to be, in all cases, symptomatic of some obscure affection in a distant organ. In a case that fell under my own observation, it appeared to depend upon a morbid condition of the ovary. In another, described in the *Medical Communications*,† it was connected with a diseased state of the kidney.

3. The most dangerous, however, of all the diseases of the stomach, is that of organic læsion of its coats. Ulcers of the stomach, sometimes partaking of a cancerous nature, stricture of the cardiac orifice, and scirrhus of the pylorus, are the common appearances on dissection. The symptoms will, of course, vary with the situation of the organic disease. In the case of scirrhus thickening

* Diseases of the abdominal Viscera, page 132.

† Vol. i. page 127.

and consequent *stricture* of the pylorus, the symptoms are pain, often very acute, shooting to the back, and aggravated by taking food; vomiting, generally occurring from one to three hours after a meal, the matter rejected being for the most part dark-coloured; and, lastly, emaciation. These distressing cases are sometimes very rapid in their progress, at other times tedious, equally resisting however every plan of treatment that can be devised.

Dr. Pemberton has remarked, that it is not very uncommon to find extensive mischief in the structure of the stomach, without the constitution being sensibly affected by it; that is, provided the disease was so situated as not to interrupt the passage of the food.

Nothing appears to be known regarding the *causes* of organic disease of the stomach, further than that it is connected with an advanced period of life.

4. Erosions or perforations of the stomach, without thickening of its coats, or any surrounding inflammation, have been occasionally found upon dissection; and they were attributed, by John Hunter, to solution of the stomach in its own juices *after death*. More recent observations, however, have tended to show that such an occurrence sometimes takes place *during life*; more especially in infants. The circumstances, however, which favour it are not well understood, and the whole subject is certainly still involved in considerable obscurity.*

[There is an affection of the stomach, in which this organ throws up in large quantity a fluid like cocoa. A quart of this fluid will often be thrown up at a time; and this will frequently be repeated for many days together. This condition of the stomach is sometimes connected with a diseased state of the liver, but sometimes it is independent of it, there

* The student is referred for further information on this curious point in pathology, to a paper by Dr. Gairdner, in vol. i. Transactions of the Medico-Chirurgical Society of Edinburgh, page 311.

being, at least apparently, no disease in this latter organ. In several instances it has proved fatal; but, in others, and especially in two cases which I recollect, the complaint subsided for several months at a time, and the persons enjoyed in the intervals tolerable health. This state continued many years, and the patients are still alive. In one case I had an opportunity of examining the condition of the stomach after death. It was very capacious, and was half-filled with this brown fluid, but did not appear to be at all diseased in its structure. The neighbouring viscera, as the liver and spleen, were (as far as I recollect) perfectly sound. The fluid would appear to be formed by a diseased secretion of the inner membrane of the stomach, without any apparent morbid structure.

This disease, according to my experience, is but very little influenced by medicine or by diet. In two or three cases, some benefit seemed to be derived from astringent medicines combined with moderate doses of opium,—as, for instance, from tincture of kino, or tincture of catechu, with a few drops of laudanum, taken three or four times a-day. The bowels should be at the same time kept free from costiveness.

In some cases the stomach will lose almost entirely the power of digestion; the patients will become pale and emaciated, and appear as if they were affected by some fatal visceral disease: at the same time no morbid structure in the region of the stomach or liver can be detected, by the most attentive examination. In some of these cases, the patients have been completely restored to health by a course of the Bath waters.]

[The unpublished works of Dr. Baillie.]

CHAP. II.

JAUNDICE.

Outline of the Pathology of this Disease—Great Obscurity still pervading it—Causes of Jaundice—Of Gallstones, and the Symptoms occasioned by them—Jaundice idiopathic and symptomatic—Symptoms of idiopathic Jaundice—Prognosis—Principles of Treatment.

MANY very intricate questions both in physiology and general pathology, are *intimately* connected with the consideration of jaundice. How far the further advances which science is destined to make, will throw light upon these, and consequently upon the nature and treatment of the several varieties of jaundice, it would be in vain to conjecture. It is sufficient for my purpose, if the student, in entering upon the investigation of this disease, is thoroughly convinced of the difficulties which assail him at the very threshold of inquiry, and is content, therefore, with those *qualified* and imperfect opinions concerning it, which are alone consistent with the present state of our knowledge. As this notion may perhaps appear to some overstrained, and hardly compatible with the ideas commonly entertained on the subject, it may be right to

begin by pointing out briefly the different physiological difficulties which will meet us in the several steps of our progress.

Jaundice obviously arises from some obstruction to the passage of the bile into the intestines; but to understand *correctly* in what manner this takes place, and to appreciate fully the symptoms which accompany it, we ought to be tolerably well informed of the mode in which the bile, in a state of health, passes through its ducts; of the use of the gall-bladder; of the use of the bile; and of the extent to which the nerves influence the secretion of the bile. None of these points have been determined with that degree of accuracy which is desirable; but, obscure as they are, there is at least equal difficulty attaching to most of the *pathological* discussions into which we shall soon be led.

In all systems of nosology, different *species* of jaundice have been described; but in many cases it would appear, as if the ingenuity of authors had rather been displayed in enumerating the several ways in which obstruction *might* take place, than their experience adduced in determining which of them are the most frequent and important in practice. It is generally stated, that jaundice may arise in one of three ways: *viz.* by *mechanical* obstruction existing within the ducts; by some functional disease of the ducts themselves, diminishing their calibre; and by pressure made upon them from without. Under these heads may be arranged the following presumed causes of jaundice: 1. The passage of gall-stones (and, in a few rare cases, of hydatids,) along the ducts. 2. Præternatural *viscosity* of the bile. 3. Spasm of the gall-ducts. 4. Inflammatory action in the coats of the ducts. 5. Enlargements of neighbouring organs. 6. Accumulations in the duodenum. Each of these will require separate investigation.

1. Some physicians have attempted to simplify the pathology of jaundice by ascribing all cases of it to the passage of gall-stones. Dr. Heberden, whose account of the symptoms of the disease is so generally accurate,* seems to have acknowledged no other cause for it; and Dr. Cullen's views were warped by a similar persuasion. That it is a *frequent* source of jaundice must undoubtedly be acknowledged; and therefore it becomes an object of importance to inquire into the *nature, origin, and consequences* of gall-stones.

Chemists have long been diligently occupied in the analysis of biliary calculi; but this portion of animal chemistry has not hitherto attained such perfection as enables us to state with any degree of certainty their constituent parts. They appear to contain all, or most of the ingredients of bile, and not to differ in any *essential* characters from each other. They vary of course very much in number, size, and figure. Several of their properties, and their peculiar crystallized structure, are sufficient to prove that something more than mere *inspissation* of bile is requisite for their formation. What that is, however, pathologists have not hitherto succeeded in detecting. It is an important and apparently well-ascertained fact, that biliary concretions are always formed in the gall-bladder. The circumstances which determine their formation there are not well known; but a life of indolence seems particularly to predispose to them. They are much more frequent in women than men, and chiefly are met with in those who have passed the middle and active period of life: 'they are found in the substance of the liver as well as in the gall-bladder.'

Impacted in the gall-bladder, biliary calculi are productive of no inconvenience. They are often found upon

* *Commentarii de Morborum Historia et Curatione.* Lond. 1802.

dissection where no symptoms during life had given occasion for the least suspicion of their existence. When, from some cause unknown to us, they pass into the ducts, especially if their size be large, they create intense pain in most cases, and jaundice, for a time at least, in all. The pain is usually felt about the pit of the stomach, and is often described as more excruciating than that which attends acute inflammation, even in the most sensible parts of the body. 'Its seat is sometimes so small as to be covered with a finger, shooting through the back, and up to the shoulder: the patient cannot bear a recumbent posture, but sits up, with the body bent forward:'. The pain recurs at intervals, 'and ceases suddenly when the stone escapes from the duct.' When the pulse is felt during one of those severe attacks, it is perhaps found to be accelerated in a very trifling degree; but generally, it is not more frequent than in health, and sometimes it is even slower.* There are present also at the same time, nausea, vomiting, 'constipation,' and extreme languor.

The further progress of the disorder is subject to considerable variety. In some cases the gall-stone passes through with rapidity; in others it appears to meet with great difficulty in its passage. I have seen a gall-stone, weighing six drachms, pass by stool after a long continuance of the symptoms now enumerated. It has been made a matter of question, whether the gall-stone is propelled forward by the contraction of the coats of the ducts, or by the pressure of accumulated bile. Some have indeed imagined, that the gall-ducts could never dilate sufficiently to allow a stone of large size to pass through them, and that it is more reasonable to suppose it ulcerates its way directly into the colon, or duodenum. Such a notion is certainly borne out by the fact, that in some

* Baillie's Morbid Anatomy, p. 268.

cases a similar process has been *distinctly* ascertained to take place ; the gall-stone working its course to the parietes of the abdomen, and being there extracted.* This, however, is one of the *many* doubtful points in the pathology of jaundice.

2. Præternatural viscosity of the bile has frequently been adduced as the cause of jaundice, and the opinion has been supported by the tenacious and pitchy stools which are often passed after the obstruction has been removed. It is highly probable, that some of the milder cases of jaundice, beginning without pain, and attended with general sluggishness in the action of the stomach, bowels, and heart, and torpor of the whole nervous system, have really such a state of the biliary secretion for their proximate cause. Hardly any thing is known regarding the peculiar causes of this morbid condition of the bile. It has been stated to arise from indolent habits, as well as the too free use of ardent spirits. I have frequently observed it in opening the bodies of those who die during the autumnal months, and it appears to be concerned in the peculiar character of the fevers of that season.

3. Spasm of the gall-ducts is another cause of obstruction strongly insisted on by some, and as strongly denied by others. The arguments in favour of such an opinion are, that jaundice has been observed to attend hysteria, and other spasmodic affections ; that occasionally its attack is transitory, and frequently, where the disease proves fatal, dissection fails to show any concretions, or mechanical impediment to the passage of bile. The only one of these arguments that can be relied on is the first ; but

* An instance of this kind once fell under my own observation. On extracting the gall-stone, the ulcer healed up, the jaundice went off, and the patient, who had suffered excessively for several months, got rapidly well.

the combination of hysteria and jaundice is so very rare, that it should rather be viewed as an accidental circumstance, than as tending to establish a great pathological principle.

4. A much more probable occasion of obstruction to the descent of the bile is inflammatory action in the coats of the ducts, either originating in them, or spreading to them from the liver, or from the mucous surface of the intestinal canal. The grounds on which such a proximate cause of jaundice has been built appear to me well established, and they are important as bearing so immediately on practice. It has been observed, that jaundice often arises from exposure to cold, more especially from taking large draughts of cold water while the body is overheated; that it begins, under such circumstances, with rigors, and is attended with many symptoms of general fever; that it is frequently complicated with *tenderness* of the epigastrium, or of the right side; and that after death, inflammation of the liver, or of the mucous coat of the intestines (and their consequences,) have been sometimes distinctly traced.*

5. Enlargements of neighbouring parts, such as scirrhous of the pancreas, scrofulous glands, swelled and tuberculated liver, have occasionally been found after death so situate as to press on the biliary ducts, and to obstruct the passage of the bile. Jaundice, however, it ought to be remarked, is often observed as a symptom of diseased liver, where dissection would hardly justify so *mechanical* an explanation of its occurrence. Pathologists have evidently no very defined views regarding the real nature of this which has been called *hepatic* jaundice.

6. There is reason to believe, that impediments to the

* See a Paper on "Jaundice," by Dr. Marsh, in the Dublin Hospital Reports, 1822, vol. iii. pp. 298 and 302.

course of the bile, occasioning jaundice, have in many cases existed in the duodenum, and we can readily understand how mucus or sordes accumulated there may so press on or clog the mouth of the common duct as to produce such an effect. The opinion is rendered probable by the rapidity with which the disease sometimes yields to a single dose of purgative medicine. It is not unlikely that infantile jaundice, the *yellow gum* of the lying-in room, has its origin in such a cause.

7. To complete that brief outline of the general pathology of jaundice which it is my object here to give, I must advert, lastly, to the curious but well-ascertained connexion existing between it and certain states of disease in the brain and nervous system. From the earliest periods of medicine, we find such an opinion avowed, and it may be illustrated in a variety of ways. Jaundice has been observed in many cases to arise most incontestably from mental emotion, more especially from intense domestic grief. It is frequently complicated with decided proofs of disease of the encephalon, and in severe cases it has been observed to prove fatal by the supervention of *apoplexy*. Inflammation, and abscess of the liver, and jaundice, have often succeeded to injuries of the head. The fevers of hot climates, in which the brain and nervous system are so deeply involved, are frequently complicated with yellowness of the skin. These phænomena probably admit of no more precise explanation than that of *mutual sympathy* existing between the brain and all parts of the animal economy. With reference to prognosis they are of much importance to the observing physician.*

* If we could place any reliance on that theory which makes *secretion* a mere *separation* from the blood, and which considers bile as existing at all times in that fluid, it might be said, that in these cases there exists some oppressed state of the brain, which suspends the functions of the liver, and causes an *accumulation* of bile in the blood-vessels.

The views which have now been taken of the pathology of jaundice, lead to the distinction of it into the two great classes of idiopathic and symptomatic. Idiopathic or genuine jaundice is that which *commences* with yellowness of the skin, and is attended with constitutional symptoms obviously referable to the morbid course which the bile takes. Symptomatic jaundice, on the other hand, is that in which yellowness of skin occurs *subsequent* to, and is in its progress complicated with, *unequivocal* evidence of local disease, either in the liver or in some distant part. In describing the *symptoms* and progress of jaundice, I of course confine my attention to the *idiopathic* form of the disease.

The only symptoms necessarily present in every case of jaundice, are discoloration of the skin and urine, and a corresponding absence of the natural colour of the stools. These vary, however, greatly in intensity. Sometimes the yellow tinge is so slight as to be perceptible only in the conjunctiva. At other times the whole skin becomes deeply imbued with it. Popular opinion long ago divided jaundice into three kinds, the yellow, the green, and the black, according to the intensity in the colour of the skin; and with it Dr. Baillie's experience (recorded in the College Transactions)* in some measure coincides. He considers the *green jaundice* as a less frequent, but much more severe form of disease than the common or yellow jaundice. It is in most cases connected with an enlarged, hard, or tuberculated state of the liver. The progress of the disorder is slow, but its fatal issue is almost always certain.† In a few instances persons have lived for many years (enjoying even tolerable

* Volume v. p. 143.

† Of all the cases of green jaundice which fell under Dr. Baillie's notice, he remembered only two that recovered.

health,) with the green tinge of bile in the skin. After a time, however, the body becomes emaciated, dropsy perhaps supervenes, the powers of the constitution give way, and at length sink altogether.

In all the varieties of jaundice the stools are pale, and the urine loaded with bile, so as to tinge linen which is immersed in it of a yellow colour, more or less deep according to the severity of the case. Other secretions, however, are supposed to be similarly impregnated; the saliva, the perspirable matter, and, as some have confidently affirmed, the milk. This however is doubtful. My own experience also would lead me to distrust, in some degree, the observations of those authors who have described the yellow dye as pervading all the internal parts of the body, the brain, heart, abdominal viscera, and even the bones.*

But independent of symptoms obviously referable to the presence of bile in the circulation, there are others of a different character, very frequently met with in jaundice; such as languor and lassitude, lowness of spirits, an itching of the skin (often exceedingly obstinate and troublesome,) a sluggish pulse, and great debility. Jaundice too is commonly attended with the usual marks of indigestion; loss of appetite, flatulence, nausea, and acid eructations. It is generally stated, and as generally believed, that costiveness is a necessary consequence of a want of bile in the alimentary canal; and it has hence been argued that the great use of the bile is to *stimulate*

* Much ingenuity has been displayed in ascertaining, by *experiment* as well as by reasoning, how the bile gets into the circulation; whether by the medium of the thoracic duct, or by the hepatic veins; by *absorption*, that is to say, or *regurgitation*. The determination of this point is of no importance to the pathologist, and the theory of jaundice is already sufficiently obscure. It obviously merges in the more general questions connected with the physiology of absorption.

the intestines. But the fact is not so. Very often the bowels act as under common circumstances, and sometimes diarrhœa prevails.

It is certainly a singular circumstance, that in some cases where, judging from the colour of the skin and of the evacuations, the disease must have gone to a great extent, the general system has yet not at all sympathized. I have seen young persons continue busily engaged in an active employment—their appetite, sleep, pulse, and tongue, remaining healthy, where yet the jaundiced colour of the skin was intensely deep. This appears to prove, that the mere presence of bile in parts not destined to receive it is of no serious detriment to the system, and that many of the constitutional symptoms attending jaundice are attributable to some *ulterior* cause. It concurs too with many other phænomena of this disease, in leading to the belief, that the bile while circulating in the blood-vessels is still capable of exerting a degree of influence over the digestive process. In no other way can we satisfactorily account for the nutrition of the body so often going on but little disturbed even in obstinate cases.

The remarks already made will preclude the necessity of detailing minutely the usual progress, and of laying down the *prognosis* in this disease. Almost every thing depends, as Dr. Heberden remarked, on the circumstance of the liver being in a healthy or morbid state. If jaundice arises from *simple* obstruction of the biliary ducts, and if the bile continue to be secreted of a *healthy* quality, it is a disease of little or no danger. Hence it happens that the jaundice of infants and *young persons* so generally ends favourably, while that which occurs in advanced life is very often the precursor of worse evils, dropsy and apoplexy, and in fact becomes one of the strongest evidences of a broken-down constitution. No

definite period can be assigned for the continuance of the disease. It frequently recurs in those who have once suffered an attack of it.

The works of medical authors are not wanting in remedies for the jaundice ; but some of them are very inert, and others of such opposite characters, that it is difficult to suppose they can be productive of any real benefit. If the views which have been here taken of the pathology of jaundice be correct, it is easy to perceive that the treatment must vary essentially in the different varieties of the affection. All that I now propose, is to offer a few reflections on the general principles which have usually guided physicians in their attempts to afford relief in this obscure disease.

I need hardly remark, in the first place, that where the nature of a disease is little known, *symptoms* must be the guide to practice. Where jaundice occurs, therefore, without giving rise to any local pain, or constitutional disturbance, we should *abstain* from medicine, and allow nature to work the cure. Where pain is urgent, it must, if possible, be relieved, and opium has always been resorted to with this object. Two or three grains of opium, in the solid form, may be given in the first instance, and repeated according to the urgency of the symptoms. A warm bath is sometimes of great use ; and under very aggravated circumstances, ‘ when the system is plethoric or febrile,’ blood must be taken from the arm. A brisk purgative is often of essential service in the jaundice of young persons ; but a continued exhibition of aperient medicines, under the impression of thus affording a substitute for the *natural* stimulus of the bile, has been productive of serious inconvenience.* An emetic, in like

* [Saline cathartics palliate the symptoms, according to Dr. Baillie, in the green jaundice : it is, however, incurable. Alkalies and bitter tonics united, are much praised by Good, as also Plummer’s pill.]

manner, has sometimes proved useful, apparently by *emulging* the biliary system, but in most instances it is of little or no avail.

A generous diet, cheerful company, change of scene, and moderate exercise in the open air, especially riding on horseback, by promoting the general health, will go far towards effecting a cure, and are frequently preferable to the best-regulated course of medicine. The dyspeptic symptoms under which the jaundiced patient so often labours, sometimes admit of relief by the judicious use of bitters and aromatics.

The great desideratum, however, has been to discover a medicine which has the power of dissolving the biliary calculus, or at least of altering that morbid condition of the bile which leads to the formation of the gall-stone. *Specifics* for the jaundice were at one time in great vogue, but of late they have been deservedly neglected. The remedies which are now chiefly trusted to for *resolving the obstruction* are alkalis, soap, the nitric acid, taraxacum, the natural mineral waters, especially that of Cheltenham, its artificial substitute, and lastly, mercury.*

Of the influence of mercury in certain states of diseased liver with which jaundice is often associated, I have already expressed my opinion, and in such a combination

* [The seeds of the common hemp (*cannabis sativa*), boiled in milk, are very celebrated in Germany in this affection. The oxymuriatic acid bath is made by mixing together three parts, by measure, of muriatic and two of nitric acid, and adding to a pint of the mixture a pint of water; and then adding three ounces thus prepared to every gallon of water; the mixture must be effected in the most gradual manner, otherwise offensive and dangerous gasses will be elicited. This bath must be applied to the feet and ancles, or to the hands and arms by sponges, and may be continued till it excite some irritation. This preparation has been highly praised in diseased liver. When jaundice proceeds from an affection of the viscus itself, and not from an impacted gall-stone, it will be found to be serviceable.]

of disease it may unquestionably be employed with advantage; but in simple jaundice from obstructed ducts, it is difficult to understand on what principle it can legitimately be resorted to.

Lastly, the practitioner will bear in mind, with a view to practice, that jaundice sometimes presents itself under the aspect of an inflammatory affection; and he will see the propriety of treating such cases by local blood-letting, fomentations to the side, and saline aperients.

CHAP. III.

DIARRHŒA AND CHOLERA.

Diagnosis of the several Kinds of Disease attended with Purging—Pathological Considerations connected with it—Causes of Diarrhœa—Ingesta—State of the Atmosphere—Diarrhœa independent of external Agents—Prognosis—Treatment.—Of Cholera—as it occurs in temperate Climates—as it occurs epidemically in hot Countries—Pathology of epidemic Cholera—Treatment.

WE are now to enter on the consideration of that important class of disorders which are known to the world under the familiar denomination of *bowel complaints*. The distress which they occasion is far greater than what attaches to diseases of more real danger; and from a general belief prevailing that their treatment is very simple—at least, that the influence of medicine upon them is great, the patient is dissatisfied unless he experiences speedy and effectual relief. To meet this (not ill-founded) expectation, the practitioner must be aware of the several kinds and causes of bowel complaints, and have rendered himself familiar with those minute shades of difference in symptoms, on which the successful administration of remedies so essentially depends. By nosologists

they are distinguished by the names of diarrhœa, cholera, colica, and ilens.

Opposed as these diseases *apparently* are to each other in the prominent symptom, the state of the alvine evacuation, the student must yet be apprized of their intimate pathological affinity, and of the necessity of considering them, not only in their relation to each other, but as connected with dyspepsia, and with every variety of abdominal inflammation. I am fully sensible, indeed, that such enlarged views of disease are scarcely reconcileable with the simplicity required in *elementary* instruction; but it will be necessary to keep them in mind from the moment the student enters on the practice of his profession, and gradually to allow the artificial distinctions of diarrhœa, dysentery, colic, and enteritis, to merge in the wider notion of *disturbed function of the intestinal canal*.

The characters of enteritis and of dysentery have been already discussed. It will be remembered that the former is attended generally with a costive, but sometimes (especially where the mucous coat of the intestines is primarily affected) with a relaxed state of the bowels; while the latter is uniformly characterized by *purging*, the stools being slimy or bloody, without any admixture of natural fæces. Purging is a symptom of disease greatly diversified in its degree, causes, concomitant symptoms, and the appearance of the matter evacuated. When it occurs without fever, and when the evacuations consist of a watery secretion from the bowels, more or less mixed with their natural contents, it constitutes an idiopathic complaint, and is termed diarrhœa. When the upper viscera of the abdomen (the stomach and liver especially) are implicated, and when to purging is added vomiting, with a copious, or perhaps vitiated, secretion of bile, the affection is of a more formidable kind, and, according to the degree of its violence, is called

either *bilious diarrhœa*, or cholera. To the highest grade of this disorder, when it becomes complicated with spasms, and excessive exhaustion of the whole system, the term *spasmodic cholera* is applied.

Diarrhœa, even in the limited sense in which it is now taken, is yet a disease presenting itself under very different aspects. To decide, therefore, in any particular case, upon its nature, and to direct its treatment with success, it is necessary to investigate accurately its rise and progress, its probable cause, its preceding and concomitant symptoms; but, above all, it is requisite to have clear notions of the pathology of purging.

The increased irritability in the intestinal canal which leads to purging is commonly (though not necessarily) associated with increased secretion from the vessels which open on its internal surface. Such a state of disordered function in the bowels may be the result of causes acting on them *directly*, or *indirectly*, through the medium of the general system. To the first of these heads we refer,—stimulating matters taken into the stomach, either as food or medicine. To the second,—particular states of the atmosphere, diseases of other parts of the body, and mental emotion.

1. Diarrhœa is, in the first place, a frequent consequence of aliment, taken either in too great quantity, or improper in point of quality; ‘as acid fruits, putrid substances, and saccharine matters.’ Being imperfectly digested, it is sent in a crude and probably *acrid* state to the intestinal canal, the delicate mucous membrane of which it irritates, and thereby occasions a purging. Diarrhœa arising from this cause is usually accompanied with the common symptoms of *dyspepsia*, and not unfrequently with severe *vomiting*. The appearance of the matter evacuated is often sufficient to characterize this form of the disease without reference to its immediate exciting

cause. It is attended with 'murmuring, and with' griping pains of the bowels, but the pains are perfectly relieved by the evacuation. It commences suddenly, and in almost all cases, though it harasses the patient for a time, it carries with it its own cure. This is the *diarrhœa crapulosa* of nosologists. It is unnecessary to add, that the same kind of diarrhœa is frequently induced by design, and that there exists in nature a variety of substances, both vegetable and mineral, which have the property of producing, even in very small quantity, purging. Should the bowels be peculiarly irritable, or, under common circumstances, when taken in excess, these drugs produce that species of diarrhœa which has been termed hypercatharsis.*

2. A most important feature in the pathology of diarrhœa is its connexion with particular states of the atmo-

* [Unusually warm weather; intemperance in eating and drinking; fat meat; fruit taken to excess, even though harmless in its nature, may be enumerated among its frequent causes in the United States; cucumbers, melons, grapes, apples, peaches, apricots, and oranges, according to Dewar, denote the regular order of the danger of these fruits: Cold water, in immoderate quantities, often produces diarrhœa, and even dysentery. From a knowledge of this fact, the Egyptians, when they are thirsty, drink little at a time, generally barely wetting their mouths. In the United States, large draughts of water often produce these diseases. Dr. Dewar states that cold water acts in this way more particularly after fatigue.†

Lémon acid, the same author considers as perfectly harmless; to persons unaccustomed to it, it however often produces diarrhœa.

To prevent this disease therefore, it is necessary to avoid all the above exciting causes; cold, excesses, acids, &c. Swathing the belly with a broad flannel bandage, from the pubis to the sternum; wearing flannel or muslin next to the skin; avoiding night air, are useful; also taking care not to sit in cool draughts of air. The patient should live on his usual diet; and if he be threatened with soreness or looseness of the bowels, ginger, cinnamon, and cassia, frequently chewed, relieve it.]‡

† Med. Recorder, vol. viii. p. 767.

‡ Ibid.

sphere; but the same general principle is applicable to almost every other disease attended with purging. We have already had occasion to notice it when illustrating the dependence of dysentery upon a moist and heated atmosphere. We shall presently see it constituting all that is known of the causes of cholera; and we may now perceive it influencing the phænomena of diarrhœa. This disease chiefly prevails in the autumnal months, and after any very remarkable changes in atmospheric temperature; as for instance,* on the breaking up of a long frost. Such a condition of the atmosphere is sufficient of itself to produce diarrhœa; but it most commonly acts as a predisposing or *accessory* cause, augmenting the irritability of the intestines, and rendering them susceptible of stimuli, which, under other circumstances, would have occasioned no inconvenience. We presume that it operates like an accidental exposure to cold, by altering the distribution of the fluids, and determining them in increased quantity upon the mucous membrane of the intestines.

3. I have stated, that there are other causes of diarrhœa which act through the medium of the general system. Sometimes they operate singly; but more commonly, as just hinted, in combination with certain conditions of the atmosphere. Of these the most important are, mental emotion, especially anxiety of mind, arising from the embarrassments of business, excessive fatigue, late hours, and irregular habits. Lastly, diarrhœa occurs *symptomatic* of certain diseases in other parts of the body with which the intestines *sympathize*. This is strikingly displayed in the diarrhœa which attends the process of dentition in infants, ulcerated lungs, suppressed cutaneous

* This was strikingly exemplified in the general prevalence of diarrhœa in London, in February, 1823, after one of the longest and severest frosts which have occurred in this country for many years.

eruptions, and chronic diseases of the liver ; ‘ worms, the water of dropsy, purulent matter, and other fluids thrown in upon the intestines, also produce it.’

Diarrhœa connected in this or any of the preceding ways, with general disturbance in the *whole* system, is often a severe and very troublesome complaint, frequently recurring after it appears to be effectually suppressed, and giving rise, by its long continuance, to loss of appetite, languor, lassitude, great debility, and emaciation. The *weakness* induced by a severe purging, that lasts only twenty-four hours, is often extreme ; and, while it shows us the necessity of giving opiates and astringents in this disease, should teach us also the value as well as the *danger* of purgatives in *others*. Diarrhœa is not, however, a disease of danger, except in the case of children and of old persons. The exhaustion produced by it in children has often occasioned a fit of convulsion which proves fatal. Dr. Baillie has described* a particular species of *chronic* diarrhœa occasionally met with in elderly persons, and in those who have lived in warm climates, and suffered from diseases of the liver. It consists in a copious evacuation of a matter resembling a mixture of lime and water (sometimes of the consistence of pudding,) and very frothy on the surface. ‘The pulse is nearly natural ; the tongue covered with a white fur ; the urine occasionally turbid, but generally clear ; the bowels are often distended with wind : it takes place more frequently in men than in women.’ It occasions great debility, is very liable to recurrence when the mind is harrassed, is little under the control of medicine, and ultimately wears out the constitution. Persons have lingered under it, however, for several years. The peculiar nature of this

* Transactions of the London College of Physicians, vol. v. p. 166.

variety of diarrhœa does not appear to be accurately known.*

The treatment of diarrhœa must be regulated by a consideration of its cause, of the age, constitution, and previous state of health of the patient, the concomitant symptoms, the manner of invasion, its duration, and effects upon the general habit. Much importance has always been attached, by nosologists, to peculiar appearances in the evacuations. These will afford some instruction to the practitioner in reference to the severity of the disease, and the progress made towards a cure, but they are incapable of any immediate practical application.

1. Diarrhœa in young persons of robust habit may very often be permitted safely and with propriety to wear itself out. It should be remembered, however, that where the disease is sufficiently active to effect its own cure, it will do so *speedily*. The continuance of the complaint for more than twenty-four hours must have some latent cause, which it is necessary to detect, and to obviate by medicines. ‘These should be, if the stomach is foul, the tongue bilious, or the disease has arisen from improper food, of an acid, acrid, or acescent nature, first, an emetic of ipecacuanha, or tartar emetic, followed by a purgative of fifteen or twenty grains of rhubarb, in union with a scruple of carbonate of soda or potash, to neutralize acidity.’

2. Diarrhœa, from whatever cause it may arise, leaves

* [The prognosis in diarrhœa is deduced from the nature of the disease, whether symptomatic or otherwise. The age, constitution, degree of debility, also are to be taken into view; as also the length of time it has continued. In pregnant women it is always attended with danger.†]

The appearances on dissection most usually found are a complete emptiness of the intestinal canal; slight patches of inflammation; ulceration, schirrus, and cancer of the inner surface of the intestines.‡]

† Thomas, p. 462.

‡ Ibid.

the bowels morbidly *irritable*; and this it is proper to check by an anodyne given either with the following demulcent—

R. Mist. amygdal. ℥i.
Tinct. opii. gtt. xx.
Syrup. ℥i.
M. ft. haust.

Or with a gentle tonic and absorbent—

R. Mist. cret. ℥i.
Confect. aromat. ℥i.
Tinctur. cinnam. ℥ss.
Tinc. opii. gtt. v. m.

To be taken after every stool.

In severe cases it is necessary to repeat a draught of this kind after every loose motion.*

3. The diarrhœa of children being often connected with imperfect digestion and the formation of *acid* in the stomach, it is right in such cases to begin by exhibiting a gentle emetic of ipecacuanha, and subsequently, small doses of chalk mixture, with a proportion of syrup of

* [During the continuance of this disease, the loss of tone and of the powers of digestion causes the aliment taken in to ferment, and acid is generated in considerable quantities; the discharges are therefore often excoriating to the extremity of the rectum, and render opiates, united with absorbent medicines, necessary: of these the most useful are chalk, as above stated, and the carbonates of potash and soda.

R. Carbonat. calc. ℥ss.
Ol. menth. piper. gtt. i.
Laudan. ℥i.
Mucil. gum. arab. ℥vii. m.
f. emuls. Take ℥ss. every two hours.

R. Carbon. potass. ℥ii.
Ol. cinnamom. gtt. i.
Laudan. liquid. ℥i.
Mucil. gum. arab. ℥vi. m.

Take a table spoonful every two hours, or after every stool.]

poppies.* This plan of treatment is applicable also in many instances to the diarrhœa of adults.†

4. Where the disease continues long, with griping pains and much *tenesmus*, it is presumable that there are acrid fæces pent up in some portion of the canal, which the natural action of the bowels is unable to dislodge; and here a purgative medicine is indispensable. Calomel and ipecacuanha, or calomel and rhubarb, may be given, so as to ensure a free discharge from the bowels.

R. Hydrargyr. submur. gr. iv.
Pulv. ipecac. gr. ii.
M. ft. pulvis. Repeat it every three hours.

R. Hydrargyr. submuriat. gr. iii.
Rhei. pulv. gr. vii.
M. f. pulv.

I have seen the same treatment required, where the disease, in the first instance, was too speedily checked.‡

* [The *rubus villosus*, or common blackberry, is praised in diarrhœa by Dr. Barton: it is given in decoction.§]

† [When it proceeds from teething, the discharge is to be kept up in a moderate degree; a few grains of toasted rhubarb, with eight or ten grains of magnesia or chalk, will correct the stools when too profuse, by neutralizing the acids, which may be present in the bowels. If the purging should frequently return during dentition, and threaten to wear out the strength of the patient, a Burgundy pitch plaster applied to the back, or blisters behind the ears, will be useful in arresting it.||]

Dr. Hamilton describes a variety of diarrhœa, in which liquid fæces, of a light clay colour, offensive smell, and great debility, are the principal symptoms. Four grains of blue pill, with small doses of ipecacuanha (one grain,) given every eight or ten hours, till the stools become healthy, or one grain of calomel to an adult at the same interval, generally¶ succeeds.]

‡ [If it proceed from some acrid matter taken inwardly, purgatives then also become necessary. The effect of suddenly arresting the dis-

§ W. P. C. Barton's Veg. Mat. Med. vol. i. p. 155.

|| Thomas, p. 185

¶ Johnson's Journal, p. 56, 1829

Under all other circumstances, purgatives are either unnecessary or absolutely hurtful.

5. When diarrhœa resists the medicines now recommended, especially when it occurs in elderly persons in that chronic form lately alluded to, more powerful astringents become necessary. I have derived great advantage from a mixture containing the compound powder of kino.

Infus. cascarill. ℥vi.

Pulv. kino. compos. ℥i.

Syrup. papav. ℥ss.

M. fiat mist. restring.

Take ℥i. every six hours.

The conf. opiata is adapted to these cases as well as to those of hypercatharsis.

R. Confect. opiat. ℥i.

Aq. cinnam. ℥i.

Syrup. solutan. ℥i.

M. f. haust. tert. hor. adhibend.

Starch injections, containing laudanum, are sometimes required once or even twice during the day.

R. Mucil. amyl. ℥viii.

Tinct. opii. ℥i.

M. f. enem. astring.

‘ Extract of logwood ; catechu ; alum, in the dose of ten grains every two hours, made into a mixture with laudanum, and the oils of peppermint, cinnamon, or anise, will also be useful ; lime-water also, administered with milk, in the quantity of a pint or a pint and a half a day, will also do much good ; or it may be given with gum

ease is sometimes griping and dysentery ; in order to guard against which, the Dover’s powder at night, with small doses of rhubarb, when the stools have become apparently natural, will be proper. The bed-clothes should be warm, and the patient kept comfortable by proper clothing throughout the day, in order to divert the disease to the skin.]

arabic water.* The *purgica granatum* or pomegranate, and sulphate of zinc, is valuable, when given with opium in the form of a pill, in the dose of one grain of each thrice a day. These astringents are also rendered more valuable by uniting them with a diaphoretic.'

6. Lastly, when diarrhœa can be distinctly traced to arise from cold; when it occurs to persons previously in bad health; in variable weather, while inflammatory affections are prevalent; and above all, when it is complicated with any degree of abdominal pain or general fever, the student will bear in mind the possibility of its being connected with an inflammatory condition of the mucous membrane of the bowels, and he will obviate this, as circumstances may require, either by bleeding at the arm, leeches, and fomentations; or the milder discipline of confinement to bed, the pediluvium, and Dover's powder.† It is unnecessary to add, that here, as in every other form of diarrhœa, the diet should be light and easy of digestion, and may consist principally of gruel, rice, panada, sago, and mutton broth.‡ 'Sometimes in dys-

* Thomas.

† [Generally, in diarrhœa proceeding from suppressed perspiration, small doses of *ipecacuanha*, with opium or without, will be sufficient. Dr. Fothergill recommends the *ipecacuanha* alone; others in combination.§]

‡ [Port wine, brandy and water, Madeira wine, and Sherry will be found to be useful: particularly the first. The food, after all inflammatory symptoms have subsided, should be solid, such as, the lean parts of meat, mutton, beef, and fowls: every thing oily should be avoided, as gravies, and the person should be thoroughly protected from cold, to prevent a relapse.

When the weather changes suddenly from cold to hot, as on the sudden appearance of spring; or on a visit to a warm latitude, the discharges from the bowels become bilious, and frequent, with vomiting of tough thick mucus.

peptic and debilitated patients exposure to a cold air pro-

Free purging with small doses of calomel, followed by rhubarb, with the plentiful use of gently acidulated diluents, will generally be sufficient to arrest this form of the disease. If the stomach is much out of order, emetics of ipecacuanha, or of tartar emetic, should be given ; and after the calomel has operated sufficiently, it may be followed by tamarinds, rhubarb, senna, and nianna ; blisters to the belly, or to the ancles. The latter are particularly valuable in all cases, where the disease is nearly worn out, as by translating the action, they often completely put a stop to it. They may be applied to the legs or to the nape of the neck.

Setons and issues are also recommended ; when the case is of long standing they are no doubt often useful.

There is a variety of disease, in which the stools are whitish, viscous, inodorous, and when minutely examined, are found to consist of membrane, like tubes, resembling in size the intestine itself. This form should not properly be classed under the head of diarrhœa. It is more truly a chronic inflammation of the internal membrane of the bowels. It is attended with considerable heat and uneasiness of the sphincter ani, with violent contraction of that muscle and pain, when the fæces are discharged. The seat of the disease is then in the rectum. It also appears higher up in the bowels, as in the duodenum. It is then attended with acute pain in the epigastric region, and an highly irritable stomach, and followed by jaundice, and obstructed bile : the pulse is somewhat excited, and the tongue is coated. The membrane discharged is sometimes half a yard in length, at others it comes away in flakes of a few inches in extent.* Dr. Good speaks highly of the use of balsam copai-va, given internally both by the mouth and injection : it no doubt has done good. It is evident that the disease is inflammatory, and therefore the proper mode of treatment should be v. s. leeches, diluents and the antiphlogistic regimen. When it attacks the rectum, then injections of white vitriol, with the same plan, promise a good deal.

In the variety described by Dr. Baillie, in which the stools resemble yeast and water, calomel in the dose of $\frac{1}{2}$ a grain, three grs. of the blue pill, or four or five of the hydrargyrum cum creta, taken every second night, and laudanum, followed by bitters, as the cascarilla tea, with a few drops of laudanum, have occasionally done good, the stools becoming more consistent and natural.]

* Med. Transact. vol. vi. art. viii. quoted by Good.

duces diarrhœa ; the acorus calamus in these cases has been found useful.*

The leading features of cholera, and its pathological relation to diarrhœa, have been already pointed out. From the earliest times, it has been acknowledged as one of the most dangerous diseases to which the human body is subject ; but the extreme malignity of which it is susceptible was never thoroughly known until within these few years, when it has been seen to spread with an uncontrollable violence, unequalled, except in the records of the most dreadful plagues. Cholera must be distinguished, as it occurs in this country *sporadically*, and in hot climates *epidemically*.

1. Cholera, as *here* observed, makes its attack in almost all cases suddenly and unexpectedly. It commences with nausea, unremitting and violent vomiting, severe griping pains of the bowels, and generally purging ; the matter rejected consisting partly, if not principally, of *bile*. It is attended with great thirst, a coated tongue, a small, frequent, and feeble pulse, a cold skin, and a hurried irregular respiration. The prostration of strength which accompanies it, and the rapidity with which it advances, give to this disease a peculiar character, and render it one of very urgent danger. In many cases, when unchecked, it proceeds so rapidly, that in a few hours the patient is brought into a state of considerable risk. Cramps of the legs, extending to the thighs, abdominal muscles, and diaphragm, combine with the incessant vomiting and purging to exhaust the patient's strength ; and if relief be not speedily obtained, are followed by coldness of the ex-

* New York Med. and Phys. Journal. 1824.

tremities and of the whole skin, extreme restlessness, clammy sweats, hiccup, and death. In general there is no pain of the abdomen on pressure, and little or no delirium; the patient dying from exhaustion of nervous power. Cholera is not usually attended by febrile symptoms, unless indeed we acknowledge that to be a febrile state which the ancients call *typhus*, where the inward parts burn and the skin feels cold. In this country cholera has proved fatal in twenty-four hours, and it seldom lasts longer than three or four days. It occurs principally in the months of July and August, and appears to be altogether dependent upon some peculiar influence of a heated atmosphere on the system, more particularly on the functions of the chylopoietic viscera. The violence of the disease is almost always proportioned to the heat of the preceding summer.*

It was a general belief among the older pathologists, that cholera depended primarily upon an *increased* and vitiated secretion of bile, irritating the stomach and bowels. The more enlarged views of the complaint, which have been taken since cholera has prevailed so extensively in India, enable us to correct this notion, and to show that the proximate cause of the disease is still unknown, though, whatever it be, it operates *equally* on the stomach, liver, and upper intestines. The peculiarities of that highly malignant form of cholera which has lately been observed in India, may be thus briefly enumerated.†

* [The prognosis in cholera depends upon the violence of the symptoms: great and sudden prostration; the pulse flagging, with great debility, convulsions, hiccup, shrunk, hippocratic face, with great emaciation, and all the symptoms on the increase, are signs which betoken great danger; on the contrary, the gradual diminution of these symptoms; the skin, pulse, and general appearance becoming natural, are favourable.]

† [Its causes are, cold drinks, crude and indigestible fruits, eaten in too great quantities, as melons, cucumbers, pears, apples, oranges, cold

The disease began sometimes suddenly, sometimes after two or three days of previous illness. When it ran its full course, it was divisible into two stages. The first was that of oppression or collapse, characterized by a pulse hardly to be felt, cold extremities, universal cramps, excessive weakness, an expression of deep anxiety, and the purging of thin, watery, or starchy stools. If the patient survived this stage, lasting from twenty four to forty-eight hours, a *reaction* came on, amounting to fever, which was in itself a source of imminent danger. During this time, the bowels threw off a load of vitiated bile, the stools being dark and pitchy; and if due attention was now paid to keeping up the strength by light nourishment, the system recovered by degrees from the shock it had experienced. Where the onset of the disease had been so violent as to occasion death during the first stage, the appearances presented on dissection were those of *congestion* in the branches of the vena portæ, the liver enlarged and gorged with blood, the gall bladder full of dark green or black bile, and the inner surface of the stomach studded with tissues of enlarged vessels.

The cholera of India, when in its greatest violence, has been known to prove fatal in a few hours, and some-

and moisture applied to the feet; suppressed perspiration; marsh miasmata; great external heat producing a secretion of bile; acrid medicines, as purges, and emetics.

The appearances observed after death, in the cholera of this country, are bile in the intestines; derangement of the viscera from straining; and in the eastern variety a greenish blackish fluid in the stomach, the internal surface of which, and that of the duodenum, are inflamed with dark spots on their surfaces: their blood-vessels highly distended: the pylorus hard, tumefied, and enlarged. The mucous coat of the intestines dark, red, brown, or blackish, containing fluids like pus,—a substance, like shoemakers' paste, often without bile, and sometimes resembling tar. In cases terminating suddenly, the brain was found inflamed, the intestines being then without any mark of disease.]

times without even the appearance of spasm; the pulse sinking at once, and all the secretions being entirely suspended. Every phænomenon connected with the disease denotes a highly deranged state of the whole nervous and vascular system of the body, the blood being thrown by the contraction of the vessels of the surface upon the deeper and larger organs. Of the remote causes of this extraordinary disease, further than its general dependence on the heat of the climate, nothing is decisively known. Some circumstances led to the belief that it was propagated by a specific contagion, but others might be mentioned irreconcilable with such a supposition.

The treatment of cholera as it occurs in this country, under an aspect so much less formidable than that which it assumes in India, is to be conducted on the following principles. The patient's strength is to be supported by drinking freely (but in small quantities at a time) of broth, or beef tea, 'toast and water, chicken water, of common spring water, from which the chill is taken off; barley water, the leaves of the bene plant, (*sesamum indicum*,) infused in water, so as to make a mucilage,' which will serve also to dilute the depraved secretions which are poured into the intestinal canal. At the same time the morbid irritability of the bowels and of the whole nervous system, is to be allayed by opium given in doses proportioned to the violence of the disease. Fifty drops of laudanum may be given in the first instance, and repeated to the extent of ten or fifteen drops, every quarter of an hour, either in camphor mixture, or cinnamon water, until the violence of the vomiting abates. It is obvious, that, as the medicine is thrown off the stomach, it should be speedily and steadily renewed.*

* [The opium should be given in combination with calomel every two hours; or with a saline effervescent draught in the form of laudanum,

Where the pulse is feeble, and the general debility great, warm negus must be administered freely. Where the surface is cold, a warm bath has been employed with very beneficial effects. Hot bottles to the feet, and wrapping the patient in hot blankets, is a very excellent substitute. The necessity of instant attention and unceasing superintendence in all cases of cholera must be apparent. Without such care the powers of life may quickly sink beyond the reach of medical aid.

As the disease subsides, the tone of the stomach is to be supported by an allowance of wine, the decoction of bark, or the infusion of the aromatic bitters, cusparia, calumba, and cascarilla.*

A similar system is to be pursued in that aggravated form of disease which prevails in hot climates. A draught, with sixty drops of laudanum in an ounce of peppermint-water, is to be administered at the very onset of the complaint, and repeated as circumstances require. The

and if still rejected, it may be given in the form of enema, giving ℥ii. each time. The nitric and sulphuric acids, combined with cascarilla, chamomile, or columbo tea, often arrest the vomiting. Each of them may be tried alone, with good effect.

Hot bottles to the feet, a heated plate, bags of heated salt or sand, cloths, wrung out of hot water, applied to the stomach, frictions with laudanum over the belly and limbs; a cataplasm of opium over the stomach; a mustard poultice, or blister of cantharides, to the epigastrium; nitric acid applied over the surface with a feather, and when its action has been sufficient, neutralized with carbonate of potass to prevent it spreading, are the remedies.]

* [The bowels must be kept gently open, after the disease has disappeared, and the tonic medicines continued, to prevent a relapse. The diet should be light, digestible, generous, and taken in small quantities at a time; flannel should be worn next the skin, and the patient should exercise in the open air, as soon as he is able to do it with propriety. Riding will be found to be particularly useful. These precautions will ward off the attacks, which so commonly recur after the stomach has been once debilitated by this disease.]

tone of the heart and arteries is to be supported by external warmth, stimulating frictions, and the liberal use of brandy, ether, ammonia, camphor, and other diffusable stimuli. When the stomach is quieted, a full dose of calomel appears to be useful by *emulging* the biliary system. That blood-letting should ever have been resorted to in a disease possessing such pathological characters as cholera, may indeed require to be stated ; but it can hardly be necessary to add, that in many cases, no blood could be obtained, and in others where it did flow, the evacuation served only still farther to depress the powers of the system.*

* [Bleeding is confidently stated on the most respectable authority, to have done good in this disease : and it was found to be more necessary in Europeans, than in natives. The doses of the stimulants, which were given, were enormous, as 20 drops of oil of peppermint, with sixty drops of laudanum, repeated every half hour. With this exception the treatment entirely resembles that recommended above.]

CHAP. IV.

COLIC AND ILEUS.

General Character of these Diseases—Division of Colic into four Species—Common or Accidental Colic—Bilious Colic—Symptoms and Progress of this Disease—Its pathological Relations—Mode of its Treatment—Colica Pictorum—Its Symptoms and Method of Cure.—Of Ileus—Its Causes and usual Termination.

THERE is but little in the history of these affections which is novel, or interesting either to the practitioner or the pathologist. A few observations, therefore, on their general character, causes, and methods of treatment, will include all that seems essential to be known regarding them.

Colic and ileus are to be considered as *gradations* of the same state of disease; *viz.* of a spasmodic constriction of some portion of the intestinal canal. They are equally characterized by griping pains and distention of the lower bowels, a sense of twisting or ringing round the navel, and spasmodic contractions of the abdominal muscles, with *costiveness*. When these symptoms continue obstinate, and when there is added to them *vomiting*, particu-

larly of matter having the appearance or odour of fæces, the disease is in its highest degree, and is called *ileus*, or the iliac passion.

Nosologists have been at great pains to describe different *varieties* of colic, but they have extended them beyond all reasonable bounds. It will be found in practice, that colic admits of a fourfold division, according to the nature of the remote cause. The first is the *accidental* colic, arising from some acrid ingesta, which irritate the bowels without producing diarrhœa. The second is the *bilious* colic, a form of disease closely allied to bilious diarrhœa and cholera, occurring along with them, principally in the autumnal months, and apparently differing from them only in some unessential features. The third is the *colica pictorum*, the well-known painter's colic, arising from the poison of lead. The fourth is genuine *ileus*, from disorganization of the viscera, or from some mechanical impediment to the due exercise of their functions.

1. Common or accidental colic is frequently occasioned by improper articles of diet, or acescent wines. It is usually attended with some symptoms of indigestion, and is hence called the *flatulent colic*. The pain of which the patient complains is often very acute, but seldom permanent, and is in almost all cases *relieved* to a certain degree by pressure. These circumstances, joined to the natural state of the pulse, and the absence of all febrile heat of skin, will seldom fail to constitute an obvious diagnosis between colic and *enteritis*, the only disease with which it is likely to be confounded. The student, however, will bear in mind, that the causes of colic prove also in some cases those of abdominal inflammation, and he will be prepared to find the one merging occasionally in the other. He will not hesitate, therefore, to take away blood, if the severity of the attack, or the habit of the patient, lead to the probability of inflammatory action.

Under common circumstances, the treatment of this variety of colic is sufficiently simple. In many cases, the spasm is relieved by a carminative draught or a small portion of brandy.

R. Aq. carui. ℥i.
Tinct. cardamom. comp. ℥i.
Spirit. ammon. aromat. gtt. x.
Syrup. croc. ℥i.
M. f. haust.—Taken at one dose.

A table spoonful of the tincture of rhubarb is a familiar and useful remedy. ‘The essential oils, as peppermint, lavender, cloves, mint, and pennyroyal, will all be found useful, taken in the dose of a drop or two on sugar; or made up with mucilage into a mixture: The oil of nutmegs will also be found serviceable. Ether, as a stimulus which acts rapidly, will, combined with laudanum and one of the above oils, act as speedily as any other medicine.’ Where these fail of the desired effect, the annexed aperient draught, containing rhubarb and the aromatic confection, may with propriety be given, or stronger purgatives if necessary, and their operation promoted by a purging enema.

R. Pulv. rhei. ℥i.
Conf. aromat. gr. xv.
Aq. menth. pip. ℥iss.
M. f. haust.

This species of colic is frequently observed in women of an *hysterical* habit, and the term *hysteric* colic has often, but unnecessarily, been applied to it.

2. The second species of colic is that to which the term *bilious* is properly, and, I believe, justly appropriated. It is one of the common autumnal epidemics of this country, and will generally be found to prevail after a long continuance of a hot and moist state of the air; ‘after sudden vicissitudes, by application of cold water to the

feet when warm; sleeping in the night air; and acids.' It occurs at the same time with diarrhœa, cholera, and jaundice, and may fairly be imputed to an increased and vitiated secretion of bile. It would appear as if the bile under such circumstances wants that cathartic quality which it commonly possesses, and acquires some præternatural acrimony, which, irritating the intestinal canal, throws it into spasmodic contractions.

It is often preceded by a sensation of weight, obtuse pain, and oppression in the chest, for some days, or yellowness of the skin and eyes.

Bilious colic is ushered in with headache, loathing of food, a bitter taste in the mouth, and very often bilious vomiting; but the *urgent* symptoms are distention and griping pains of the bowels, 'nausea, vomiting of bile,' urgent pain of the loins, and obstinate costiveness, or at most *tenesmus*, the motions being very scanty and partly slimy. The continuance of such an irritation even for a short time usually leads to fever; and bilious colic therefore is frequently complicated with the more general affection, *bilious fever*. In this particular variety of fever, there is often considerable headache, for the most part referred to the occiput. The tongue is loaded, the fur upon it being often yellow, and in streaks. There is, besides, much thirst, a short dry cough, restlessness, and exceeding languor and lassitude, the pulse being seldom much accelerated, or the heat of skin very apparent; 'it is sometimes very slow, fuller and harder than usual. Eructations are not uncommon, and are attended with great relief: Hiccup is also frequent, and is not always fatal: Convulsions and spasms of parts of the body also attend, particularly as the disease advances; also paralysis.'

In this state of disease, if a discharge of fæculent bilious matter can be obtained, the symptoms generally yield; but it is often exceedingly difficult to procure evacuations

of this character, on account of the irritability of the stomach. Where bilious stools are not brought away, it is common to find chocolate-coloured motions passed, frequently in vast quantity, reducing the patient to a state of great weakness. If by the fortunate combination of medicines, or by the efforts of nature, the irritating cause is removed, the tongue becomes clean, appetite returns, and the patient recovers strength.

Such is a brief sketch of the bilious colic as it prevailed in London in 1821. It closely resembled that described under the same name by Sydenham, as occurring in London in 1670-71. The observations formerly made on the causes of bilious diarrhœa apply equally to this case.

In the treatment of bilious colic, the object is to free the bowels from the load which oppresses them; but the practitioner must also keep in view that *irritable* state of the whole tract of the alimentary canal, which is so prominent a feature in the disease. Opium at once suggests itself as a ready means of allaying this morbid irritability of the bowels; but experience will show, that though it affords relief in the first instance, its exhibition is in most cases succeeded by increased feverishness, and an aggravation of headache, and uneasiness of the bowels.

Unless full vomiting has already taken place, it will be advisable to begin by giving ten or fifteen grains of ipecacuanha, which may be followed by a pill containing calomel and rhubarb, a dose of castor oil, 'manna,' or the common senna draught. If there is much irritability of stomach, it will be advisable to commence with a saline medicine in a state of effervescence, containing twenty or thirty drops of laudanum; 'or simply small doses of calomel (one grain) repeated every fifteen minutes. If it produces salivation, the pain is instantly relieved, and the disease ceases.' This will enable the practitioner to administer his aperient subsequently with more advantage.

When the operation of the purgative upon the bowels is manifest by the appearance and odour of the evacuations, a 'more' full dose of laudanum may be given with the best effects. For several days afterwards it becomes necessary to exhibit, occasionally, some gentle aperient which may prevent *accumulation* and reaction.* During the convalescence, which is sometimes very tedious, advantage will be derived from a light tonic, such as equal parts of camphor mixture and decoction of bark, 'with farinaceous food, as crackers, sago, rice, and corn mush. Cold air, and wet feet, must be guarded against ; flannel, and mild and gentle laxatives, must be used.'

3. There is a species of colic which has been proved by ample evidence to arise from the gradual absorption of lead into the system. Little mention is made of such a disease in the writings of the ancient authors, though many of them were sensible of the generally deleterious effects of lead upon the body. Paulus Ægineta is the first who distinctly describes the disease, without however being aware of its true cause. For many years afterwards it was attributed to *acidity*. It was first called *colica pictonum* by Francis Citois in 1617. The discovery of its real source was made by some German physicians in 1696, who in attempting to investigate the origin of an epidemic colic then prevailing, ascertained that vintners had been in the habit of making their wines pa-

* [Bleeding must be practised in all cases of colic, where the system is plethoric and robust ; and where from the violence of the pain, there is danger of inflammation ; and it must be carried to an extent sufficient to relieve the pain. Mustard poultices, blisters, warm fomentations, and the warm bath, are necessary in the bilious form, as well as in every other. Active enemata of turpentine, rubbed up with the yolk of an egg ; of salt and water ; the tobacco suppository, made by rolling up some wet tobacco leaves, and sewing them together in a proper form, will be useful in assisting the operation of the purgatives, according to the judgment of the practitioner.]

latable by throwing into the casks *litharge*. The first author who drew the attention of the profession to the subject in this country, was Sir George Baker, who in the most elaborate manner* traced the disease to lead in a variety of situations where it had not previously been suspected.†

The complaint has little to distinguish it from the more common varieties of colic. There is the same violent and almost constant pain about the navel, with a retraction of

* Transactions of the London College of Physicians, vols. i. and ii. 1767. A series of six papers.

† [Lead may be introduced into the system, first, by the lungs, as is evident from the effects produced both upon animals and men in the neighbourhood of smelting furnaces; and also from this colic being caused by sleeping for a few hours in a room newly painted;‡ from the effect of the clothes of the workmen inducing relapses after an attack; and from the difficulty of curing the disease as long as the clothes remain in the room.§ It may also gain admittance with our food. Dr. Good prevented it in a painter, by advising him to wash his hands before eating: this injunction secured him for six or seven years; he at last, however, fell a victim to neglecting it. The adulteration of acid wines, as above observed, is the most frequent source of its introduction into the system. Water does not take it up, as has been long since proved by experience, as well as by the observations of Dr. Percival, instituted for that purpose. Lead may also gain admittance into the system by the surface: Sir Astley Cooper states, that he has known it to produce a palsy of the upper eyelid, when applied as an eyewater. A case is related in the London Medical Observations, in which a palsy of the sphincter ani was the consequence of the application of a wash, containing lead.

Lead, when wine is adulterated with it, subsides in a white precipitate when sulphuric acid is poured into it; and when water impregnated with sulphurated hydrogen is poured into the wine, the lead falls to the bottom in the form of a black and flaky precipitate. This test may be prepared by pouring sulphuric acid on a paste made of sulphur and iron filings, and passing the gas which arises into a flask of water, by a tube.]

‡ Med. and Chirurg. Transact. vol. ix. p. 238. Annal. de Chimie, v. 88, p. 263.

§ Baker's Essay.

the integuments of the abdomen towards the spine, pain in the small of the back, 'sickness, costiveness,' tenesmus, and sometimes, though not constantly, vomiting. The patient experiences a degree of relief by keeping the trunk bent upon the knees.* The constitution suffers but little, even in aggravated cases of this affection. The pulse and tongue are unaffected, and no debility is produced by it.

Colica pictonum, when once established, is very liable to relapses. In the course of time it assumes a chronic character, and is accompanied with a remarkable palsy and wasting of the muscles of the fore-arm and hand. The joint of the wrist becomes loose and flaccid, and a tumour is often perceivable in the back of the hand. In the worst cases, a more formidable affection of the nervous system is met with, evinced by the occurrence of delirium, convulsive fits of an epileptic character, and even confirmed coma. If these complaints concur with such habits of life as expose the patient to the influence of lead, the true nature of the disease is placed beyond the possibility of doubt.

The only peculiarity that I am aware of in the treatment of saturnine colic, is the greater necessity of employing *opium* along with the purgative.† In the more common varieties of colic, it is often advantageous, though

* [He is also relieved after vomiting; it, however, only palliates. Some slight swellings appear on the joints of the toes, and round the edges of the feet;‡ a sweat breaks out, with an efflorescence on the skin; scybala, blood, &c. are voided, and recovery takes place.]

† [Dr. W. P. C. Barton, professor in Jefferson College, Philadelphia, treated with great success a number of cases of this disease by copious bleeding. They appeared on board a ship where there was a great deal of white lead. He bled them very copiously, and with the happiest results.]

‡ Good, vol. i. p. 126.

not absolutely necessary, to *allay* the pain in the first instance; but here the spasm is so fixed (apparently in the circular bands of the colon,) as generally to defeat the operation of a purgative, unless it be aided by the relaxation which an opiate produces. If the stomach is in a state to allow the administration of a purgative in a *liquid* form, it should always be preferred. The following draught, containing castor oil and opium,—

R. Ol. ricin. ℥ss.
Mucil. gum. arab. ℥iii.
Aq. piment. ℥vi.
Syrup. ℥i.
Tinct. opii. gtt. x. m.

may be repeated every six hours, until the bowels are freely moved, or the common senna draught may be given with a proportion of laudanum.* Where the stomach is irritable, attempts should be made to procure stools by pills of colocynth,† calomel, and opium,—

R. Extract. colocynth. comp. gr. v.
Hydrar. submur. gr. v.
Opii. gr. i.
M. f. pillul. duæ.

but the practitioner will be careful not to *persevere* in the use of calomel, as the system is very susceptible of the influence of mercury in this, and, I may add, in all other

* [These doses of opium advised by the author, are too small; it is often proper, and generally succeeds best, to administer it in much larger quantities,‡ two or three grains every two or three hours, or sixty to one hundred drops of laudanum, in strong mint water.]

† [Dr. W. Barton speaks highly of the *podophyllum peltatum*, as a purgative, in this disease.§]

‡ Good's Study, vol. i. p. 133.

§ Veget. Materia Med. of the United States.

states of spasmodic disease.* Fomentations to the abdomen, the warm bath, and emollient injections, containing laudanum, will contribute materially to a speedy and successful result. In some cases, blood must be taken from the arm, before the spasmodic constriction of the bowels will relax. When the bowels are once freely moved, the pain, which had previously perhaps been excruciating, quickly subsides.† A return of the disease,

* [This remark is directly contrary to our experience. A salivation, say Drs. Biss and Warren, immediately arrested the pains and affections of the belly. The nitrate of silver has also succeeded in completely relieving the palsy of the limbs; Dr. Roberts gave it to the extent of four or five grains a day: one eighth or one fourth of a grain is a sufficient dose to commence. It operates as a laxative; it is, therefore, proper to combine with it a small quantity of opium.‡ Alum in the dose of from twelve to eighteen grains, three or four times a day, is also said to mitigate, and at last to remove the pain. This remedy is very popular in Germany, and has also succeeded in England.§]

† [Cold water dashed upon the body and limbs from a pail, the patient being seated in a tub, has succeeded completely in opening the bowels, after the usual means of fomentation by cloths wrung out of hot water, the warm bath, opium, and cathartics, had failed. Walking on a cold stone or marble floor, has also opened the bowels, when none of the ordinary means had any effect.

The use of a tobacco suppository, recommended by Dr. Johns, may be tried. It is not liable to the objection of the tobacco injection, viz. that it is sometimes taken up into the bowels, where, from its strength, it operates as a poison, and destroys the patient. The suppository can be withdrawn immediately. The quantity of the tobacco applied to the surface of the gut, it is to be feared is too small to produce any effect. If it is concluded to use it in the form of injection, the proper proportion is a dram to the pint of boiling water. It may also be used by throwing up the smoke through the stem of a common tobacco pipe, blowing into the bowl filled with burning tobacco. If the tobacco produces no cathartic effect, a blister to the belly sometimes succeeds. Opium, applied externally by rubbing laudanum on the surface, acts in

‡ Good, vol. i. p. 132.

§ Percival's Essays, vol. i. p. 11. Ed. Med. Comment. vol. ii. p. 305.

so much to be dreaded, is to be guarded against by the constant use of some aperient medicine. The following draughts are well adapted for this purpose—

R. Ol. ricin. ℥i.
Mann. ʒss.
Pulv. acac. ℥i.
Aq. piment. ʒi.
M. f. haust.—Take it every four hours.

R. Magnes. sulphat. ʒi.
Infus. ros. ʒi.
Syrup. ʒi.
M. sumt. haust. tert. hor.

‘ Dr. Flint cured a case of colica pictonum of old standing, by the spirits of turpentine. See N. England Journal, Jan. 1824.’

4. One of the most distressing states of disease which the physician has ever occasion to witness, is that of ILEUS; but happily it is very rare. The complaint usually begins with the ordinary symptoms of colic, and is perhaps, in the first instance, relieved by the means now recommended. Continuing to recur however, the time at length arrives, when purgative medicine ceases to have its effect. Day after day passes without relief to the bowels, which remain painful and *distended*. Vomiting succeeds, and

a decided manner; and if used extensively, produces all the effects which its internal exhibition can do; and when it disagrees with the stomach and is rejected, this mode of applying it has an excellent effect.*

When the limbs continue weak, the use of the flesh-brush, with liniments of turpentine, volatile spirits of hartshorn, flannel, and tonics of iron, cinchona, should be had recourse to.

The plan of Dr. Pemberton, of applying a splint extending along the forearm to the hand, with the view of taking off the weight appended to the muscles, is one which may be tried; but from the trials I have made with it, it promises very little.]

stercoraceous matter is sometimes rejected. The distress of the patient under these circumstances can be equalled only by that of his friends and medical attendants, and his release from suffering is all that can be desired. Life is often protracted, however, in this state of disease to a painful extent, and the mind in many cases continues clear up to the last moment.*

Dissection will generally unfold, in a satisfactory manner, the source of mischief; but there is considerable variety in the circumstances which will occasion this total derangement in the functions of the bowels. In some very rare cases, the canal is rendered impervious by mechanical obstructions, such as intestinal calculi and polypi. More commonly a scirrhus tumour will be found, affecting, probably, every portion of the structure of the intestines, and occasioning ulceration of a cancerous character, and *stricture* of the gut. In a third set of cases, *intussusception* will be observed. Such an appearance indeed is often met with, particularly in children, where no symptoms of obstruction appeared during life; but at other times, so large a portion of the gut passes within another that it cannot be disentangled. It is certainly a curious circumstance, that this state of disease has, in one or two cases, been removed by the efforts of nature, adhesions being formed, the intussuscepted portion of intestine sloughing off, and being afterwards passed by stool. A distinction has been made between *progressive* and *retrograde* intussusception, but for obvious reasons it can never be applied in practice. It is worthy of notice, that occasionally, after death by ileus, the intestines have been found, not contracted, but inordinately *distended*. It has

* Dr. Baillie has described (Transactions of a Society for the Improvement of Med. and Chir. Knowledge, vol. ii. p. 174) the case of a man who had no evacuation from the bowels for nearly fifteen weeks before his death.

hence been conjectured, and with great appearance of reason, that their muscular fibres may, by the over-distention either of fæces or of flatus, become paralyzed, as often happens to those of the bladder of urine from a similar cause. The last source of ileus meriting particular mention, is chronic inflammation and general thickening of the peritonæal coat of the intestines. This I have seen in two cases to produce all the symptoms of ileus, without any constriction of the intestinal canal in a particular part.*

It is very seldom that ileus is recovered from. It arises, we have seen, in most instances, from local causes, obviously unsusceptible of relief; but in those cases where it depends upon a more general disturbance in the intestinal functions, the disease, before it assumes a decided character, has probably attained a height which will baffle all the resources of medical art. The remedies which have been chiefly resorted to with the view of overcoming the obstruction, after the failure of purgatives, are, dashing cold water upon the extremities, injections of tobacco-smoke, or of tepid water in large quantity, and the exhibition of crude quicksilver. It is hardly to be expected, that a disease which in its early stages has resisted a *well-directed* course of medicines, should yield in its latter periods to such bold but unscientific treatment.†

* [The causes of ileus are, cold drinks taken when the system is heated; acid and acrid substances, as vinegar, hellebore, scammony, &c. in large doses; irritants introduced into the stomach, as knives, pieces of money, fruit, stones, horns, bile, indurated fæces, cold applied to the feet or belly, with the other organic derangements above specified, also produce it.]

† [When the disease is attended with violent inflammation and pain, bleeding till the pain is completely abated, both generally and locally will be advisable; particularly in robust habits. Where the constitution is delicate, it must be taken sparingly. As the disease cannot in general, on the first accession, be ascertained actually to be ileus, it will

be prudent in all cases at least to deplete in the first instance, even before inflammation can have taken place so far as to render the system susceptible to the action of remedies. The ordinary means for colic may then be used.

If the fit be ushered in by shivering, the necessity for blood letting will be the greater; as also if the patient be corpulent and plethoric.

Calomel in doses of five grains every two hours, is the best purgative. By some the calomel is given in the dose of ten grains; combined with one grain of opium at every dose, it answers particularly well. The opium is necessary to prevent vomiting. The advantage of the calomel is that it irritates but little, and is with difficulty rejected. It should after some hours be followed by a dose of Glauber or Epsom salts. Scammony, Jalap, or other resinous purgatives must be avoided: they irritate and endanger inflammation.

The warm bath; warm fomentations by cloths wrung out of hot water, with opiates, in the dose of one, two, or three grains, or fifty or one hundred drops of laudanum, given every hour till the patient is easy, when the pain is excruciating, will be proper.

Hyoscyamus may also be taken in the dose of half a grain every hour, and increased according to the symptoms. Blisters to the belly; solution of volatile alkali; volatil. spirits of hartshorn, applied by a muslin rag wetted in it, or nitric acid applied on the surface with a feather, and as soon as it produces its effect using carbonate of potash to neutralize it, will all have a decided effect. Blisters are useful by obviating inflammation, allaying pain, and rendering the system more susceptible of the action of medicine.

Injections of warm water, thrown up with force, by a syringe, have been advised by De Haen, with the view of resolving the spasm, and is said to succeed. The tobacco injection (3i to the pint of boiling water) is valuable. It excites, it is proved by experiments, the whole alimentary to a great degree.* It allays nausea† and revives in the exhausted states of the system.

With regard to the use of cold applications to the belly, as iced water, ice and snow, though they are said to have cured the disease, they must be used very guardedly; as cold applied to the feet or body often produces colic.

Mr. Abercrombie believes that there is a state of this disease, which proceeds from nervous irritation alone, and is in fact a cholera, in which the current is entirely upwards. This form is very rare, and is treated like cholera. Its diagnosis is difficult and cannot have much influence

* Abercrombie.

† Legare, Inaugural Dissertation.

on our practice. V. S. blistering, opium and ether, constitute the outlines of its treatment.

Dr. Porter of Bristol relates a case of ileus, where vomiting of stercoraceous matter had taken place to a great extent, in which five grains of solid opium were given, a large blister applied to the belly, and a cold saline enema thrown up the rectum : the vomiting stopped : ten grains of calomel were next given and small doses of turpentine every hour ; on the succeeding day the stools were very abundant.

The tartrate of antimony is recommended in injections by Quarin ; it has been given in the quantity of two drams by Dr. Rousseau, of this city.

Injections of air, from experiments on the dead body, by Dr. Blacklock of Dumfries, is very powerful in removing intussusceptions.]

CHAP. V.

WORMS.

Notice of the Several Varieties of intestinal Worms—The Lumbricus—The Tænia—Ascarides—Symptoms occasioned by them—State of the System, and of the intestinal Canal, leading to their Formation—Theory of the Generation of Worms—General Principles of Treatment—Varieties of anthelmintic Medicines—Mode of their Operation.

THE presence of worms in the intestinal canal carries with it such decided evidence of the existence of disease, that it has from the earliest ages been a constant object of anxiety in the world, and a favourite subject of investigation with medical authors. Hippocrates and Galen have written concerning worms; and in our own times the attention of many distinguished pathologists has been directed to the same inquiry. With all this, it is singular how little is really known concerning them, which may illustrate their origin, or direct us in our methods of treatment. It is true, indeed, that their varieties and every thing relating to their *natural history*, has been fully and ably detailed; but to the practitioner in physic these are mere objects of *curiosity*, which may claim attention in

an hour of leisure, but are wholly useless as applied to practice. That which to him would be desirable—a knowledge of the general pathology of worms, of the state of body in which they originate, of the symptoms which they *immediately* excite, and of the extent to which they influence the production, or modify the symptoms and progress, of other diseases,—is, it must be confessed, still involved in very great obscurity. Yet these are points which I am well persuaded will be found in practice of essential importance, and the investigation of which appears to require only patient attention. I cannot doubt that the subject will one day receive that *full* investigation which it merits.

The intestinal canal in man is infested by five different kinds of worms; *viz.* the *ascaris lumbricoides* or *lumbricus teres*, (see fig. 3 and 4, the male and female,) the *ascaris vermicularis* or common *ascaris*, (fig. 2.) the *trichuris*, and two varieties of *tænia*. Of these the *trichuris*, (fig. 1.) and the *tænia lata*, (fig. 5.) are so rare as not to require a detailed notice in an elementary work. Our attention may be confined, therefore, to the three varieties well known under the familiar appellation of the round worm, the tape worm, and the thread worm. In treating of them, I shall briefly allude to such circumstances only in their history as appear susceptible of practical application.

1. The *lumbricus teres*, or round worm, resembles in its general aspect the common earth worm; but there are many points of difference between them, as well in their external appearance as in their internal structure.* † It is

* The reader will find these fully detailed in Dr. Baillie's *Morbid Anatomy*, p. 194. For the anatomy of intestinal worms I beg also to refer to Dr. Hooper's Paper on the subject, in the *Memoirs of the London Medical Society*, vol. v.

† [The body of the earth worm is flat towards its extremity, with

from twelve to fifteen inches long, and infests principally the jejunum and ileum. It sometimes ascends to the stomach, and has even been taken out by the mouth. A few instances occur of its being *solitary*. In the generality of cases, however, there are at least two; and occasionally thirty or forty have been found together. They are much more common in the intestines of children than in those of persons full grown, or advanced in life. In fact, they are rarely met with after fifteen years of age.

2. The *tænia*, or tape worm, is frequent in this country, both among children and adults. The worm is often very long, extending in many cases to twenty or thirty feet. It occupies the upper part of the intestines, and feeds on the chyle. It is commonly imagined to be solitary, and has from this circumstance been called the

bristles on its under side, capable of being erected at pleasure; it moves by a regular and continuous course of action, propagated from ring to ring; its color is of a dusky red, and its head has but one vesicle. The intestinal worm is round; its color is of a pale red; its head is furnished with three vesicles, placed triangularly, and in moving it curls its body into circles, from which it extends its head.*

As the fluke worm is sometimes found, it may be proper to state, that it is flattish, with an aperture or pore at the head, and generally another underneath. Besides these worms, the intestines are often the seat of larvæ, introduced from without; as those of several scarabæi or beetles; those of the *cætrus* or gad-fly generally found in horses, but also sometimes in men, more particularly grooms and other persons, who are much among horses. In the Dublin Hospital transactions is related a case of a nervous young lady, who in visiting a graveyard, where she staid all night, at the grave of her mother, took into her mouth the larvæ of several insects; which matured their young in her stomach and gave her much sickness and intestinal disturbance for a long time. A species of *gordius* or hair-worm, produces gripings and colicky pains, in the Laplanders, who drink the waters of the marshes. The common leech is sometimes swallowed, producing hemorrhage from the bowels. Other water insects have also been swallowed and discharged.]

* Good, vol. i. p. 201.

tænia solium. This is not, however, strictly the case. The detached joints of this worm have the appearance of gourd-seeds, and it has hence received the name of the vermes *cucurbitinus*. It has been supposed, that each joint possesses a kind of independent life; but this notion is altogether unwarranted.

3. *Ascarides*, or thread worms, are about half an inch in length, of a yellowish white colour, and remarkable for their very quick motion. Their true domicile is the mucus and thin fæces of the rectum and colon. From this they sometimes wander, and are found in the vagina and about the thighs. Mucus is probably the food by which they are nourished.

The symptoms occasioned by worms are often very indistinct. Their general characters are those of dyspepsia, irregular action of the bowels, and nervous irritation. I am not aware that it is possible to distinguish between the symptoms occasioned by the round and tape worm. It can only be stated generally, that the former produces symptoms of greater intensity, and being so much more generally found in children than the *tænia*, may commonly be suspected at an early period of life. In adults, on the other hand, affected by symptoms of worms, the presence of *tænia* is rendered probable.

Children who are troubled with worms complain of a gnawing uneasy feeling about the stomach, which is removed, or diminished, by eating. The appetite is deranged and variable, often more than ordinarily voracious. The belly is hard and swelled. There is picking of the nose, hiccup, disturbed sleep, and grinding of the teeth. The countenance acquires a peculiar character (smooth and livid,) not easily described, but well known to those who have the care of children. Irregularity of the pulse, a slow remitting fever, and emaciation, are also observable in some cases. The irritation which worms occasion

in the delicate constitutions of children has frequently brought on symptoms marking an affection of the brain and nervous system, such as giddiness, dilated pupil, and epileptic fits.

Nothing perhaps more strikingly characterizes the presence of worms than certain *anomalous* symptoms, not observed in other diseases, or not accompanied by those which under common circumstances would appear along with them. A short dry *sympathetic* cough, or pains in the thorax without corresponding dyspnœa or affection of the pulse, are among the most unequivocal symptoms of worms which I have ever witnessed. ‘Syncope, delirium, palpitations, apoplexy, tetanus, St. Vitus’s dance, asthma, &c. have all been occasioned by them.’ In like manner I have seen worms occasion every symptom of peritonæal inflammation, with the exception of buffy blood. The difficulty of making an accurate diagnosis between the symptomatic *nervous* affections brought on by worms, and genuine hydrocephalus, has long been acknowledged. In many cases, I presume it to be quite impossible; the two diseases existing together, and probably standing in the relation of cause and effect to each other. Worms will not only *produce* other diseases, but they will serve to modify the symptoms of such as may accidentally arise. This I have frequently noticed in the case of hooping cough. It appears, therefore, difficult to assign any limits to the degree of constitutional disturbance which worms may occasion.*

* [The evils which arise from worms, may be summarily stated in the words of Dr. Heberden to be, headaches; vertigo; torpor; sleep broken off by fright and screaming; convulsions; feverishness; thirst; pallid hue; bad taste in the mouth; offensive breath; nausea; squeamishness; voracity; leanness; tenesmus; at length excretions of films and mucus. Hemorrhage has sometimes taken place from the lungs, the brain, the uterus, and the nostrils, in consequence of worms in the bowels.]



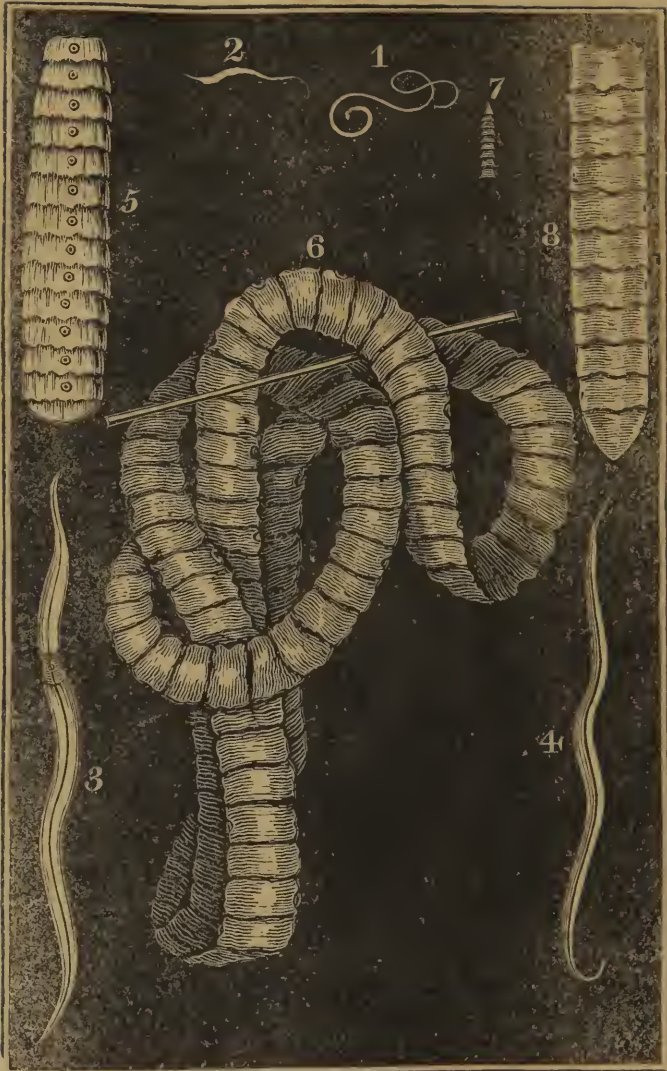


Fig. 1, Long Thread Worm (*Tricocephalus Dispar*) or *Trichuris*.

Fig. 2, The Maw or Thread Worm (*Oxyuris vermicularis*, *ascaris vermicularis*).

Fig. 3, The Female *Ascaris Lumbricoides* (*Lumbricus Teres*) or Long Round Worm.

Fig. 4, The Male *Ascaris Lumbricoides* (*Lumbricus Teres*) much reduced.

Fig. 5, The Broad Tape Worm (*Bothriocephalus Latus*) or *Tænia Lata*. It occasionally ends in two processes, one of which is larger than the other. Its head resembles that of the *Tænia Solium*.

Fig. 6, A portion of the *Tænia Solium* or Long Tape Worm, of the natural size.

Fig. 7, The head of a *Tænia Solium*, of the natural size.

Fig. 8, The last joints of the *Tænia Solium*, shewing its mode of termination.

'There can be no doubt that worms frequently exist in the intestines of adults (and even sometimes of children) for a very long time without giving rise to the least uneasiness. In this way only can we account for the extraordinary length which the tape worm has frequently attained. In many cases the first notice of the complaint which the patient has, is the passing of some portions of the worm by stool. I have seen a person from whom they dropped on any exertion of walking. In other instances, adults having worms suffer some of the inconveniences usually attendant on dyspepsia or colic. It is not often that the nervous system sympathizes at an advanced period of life.

Ascarides seldom occasion any thing more than local uneasiness,—a constant, often intolerable itching about the anus and pudenda, with a sense of heat in the parts, 'sometimes cutting pains,' tenesmus, and slimy stools. These uneasy sensations almost always come on towards evening, and prevent sleep for several hours. Although *ascarides* do not produce much constitutional disturbance, yet they have been known to give rise to itching of the nose, restlessness, 'convulsive cough,' headache, giddiness, and some symptoms of dyspepsia. They are easily got rid of for the time by some bitter or oily injection.*

* [The *tænia*, according to Brera, is distinguished by the following symptoms : a pain in the belly, with a turning motion and weight in the side, as if produced by something alive ; occasional prickings, or rather bitings, felt in the region of the stomach, the abdomen swelling at intervals and then subsiding suddenly ; enormous appetite ; the patient growing thinner the more he eats ; weakness of the limbs ; faintness ; livid complexion ; the pupil unusually dilated, the eyes suffused with tears ; vertigo ; vomiting, and general trembling of the system ; uneasy feeling on hearing music, particularly that of the organ. When the *tænia* fixes its fangs into the intestines, it gives acute pains, and is followed by convulsions ; a sense of tightness in the nose also accompanies it. The *lumbicoides*, Brera thinks, are distinguished by colic, and by pungent rending pains.]

I have already had occasion to remark, how little is known regarding the state of the general system, and of the intestinal canal in particular, which leads to the formation of worms or encourages their lodgment. They are commonly met with in persons of weak, enfeebled, or irritable habits; and therefore prevail much more extensively in children than in adults, in women than in men. Yet many persons in the prime of life are subject to worms who have no obvious marks of general weakness about them. Further, it cannot be doubted that a weak state of the digestive organs is that which principally leads to the production of worms; and this, as we shall presently see, is an object of the first importance with a view to treatment. The disposition to form worms, when once begun, is with difficulty removed. In some habits it appears to be almost unconquerable, and this I have observed to apply more particularly to the case of tænia.

There is nothing in all pathology more obscure than the *origin* of intestinal worms. The theory which ascribes them to ovula which are taken into the body along with the food and drink, and which find a nidus in the mucus and imperfectly assimilated food of a weakened intestine, might be supported if we found such animals in other situations. But this is not the case: they are incapable of existing for any length of time, except within a living animal body. Another supposition has therefore been started, that they are formed independent of ova, from matter contained in the intestines, having previously no regular organization. This idea, however, is contrary to all analogy in the production of animals, where any satisfactory opportunity of investigating the subject exists. The origin of intestinal worms, therefore, is still involved in great difficulties, and probably will not soon have any satisfactory light thrown upon it.

The treatment in worm cases has usually been conducted upon very empirical principles. The only object sought has been the expulsion of the worms, and this has in many instances been effected by medicines which have a tendency at the same time to weaken the action of the stomach and intestines, and thus to increase the disposition to form them: 'medicines which restore the tone, and favour the expulsion of the worms are most proper.'

It would be tedious and useless to enumerate all the *anthelmintic* remedies which have been recommended even upon high authority. Some of them are simply drastic cathartics; such as colocynth, scammony, gamboge, calomel, jalap, 'and the podophyllum peltatum.'* These medicines, in spite of their debilitating effects, are certainly of great importance, and it will be right in all cases to commence the treatment with some mixed purgative powder. That which operates briskly, and which brings away most mucus, will answer the best. The legitimate reason, indeed, for exhibiting active purges, is to free the intestinal canal from that load of mucus in which the worms burrow, which is thrown out perhaps, in some measure, as a defence against them, but which in its turn interferes seriously with the process of digestion, and prevents the due action of tonic remedies.†

The second class of anthelmintic medicines includes the oils, fixed and volatile, especially castor oil and oil of turpentine. They have been supposed to operate by blocking up the respiratory pores of the worms; but this theory can hardly be supported. The oil of turpentine,

* See W. P. C. Barton's Veget. Materia Medica.

† [In some cases, from the irritability of the stomach, it is impossible to give sufficient doses of medicine; sometimes they cannot be given by injection; they may then be applied to the belly externally, with the best effects.]

first recommended by Dr. Fenwick, of Durham, in 1810,* is undoubtedly the most certain of all the means we possess of directly removing worms. The full dose (in which it may *safely* be given even to children) is six drachms, in milk, or mixed in water either by means of mucilage or honey. It generally produces an intoxicating effect that quickly passes off. The *tænia* seldom or never resists it. The student will remember that this is of all worms the most difficult to remove.† The round worm possesses great sensibility, and is very easily got rid of; and hence it is that such a variety of medicines have been found useful in its cure.

The third class of vermifuge medicines includes those which are bitter, acrid, or astringent, and which may be

* Medico-Chirurgical Transactions, vol. ii. p. 25.

† [The plan of Bourdier for treating *tænia*. Take in the evening a little panada, with the yolk of an egg. Next morning, in a glass of strong decoction of the fern, take one dram of the sulphuric ether. Five minutes afterwards, a glyster of the same decoction, and ℥ii. of sulphuric ether; an hour afterwards the following purgative; castor oil, ℥ii. syrup of peach blossoms, ℥i. to be assisted in its operation by several cups full of mild soup.

Camphor, nearly allied in its virtues to turpentine, has been found useful as an anthelmintic. Half a dram is dissolved in a pound of water, to which half a dram of gum arabic is added, and the mixture given in small spoonfuls every hour.

Method of Professor Dubois for curing *tænia*. In the evening some panada. Next morning, in a cup full of vegetable soup, take ℥ss. of the powder of the root of fern.

An hour after, take in three boluses,

Jalap, Diagridium, Gamboge, Scammony,	}	a gr. vi.
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And drink vegetable soup the remainder of the day.

Petroleum, in the dose of 20 or 40 drops, with ℥ss. of turpentine, divided into three doses, is a remedy common in Egypt for the *tænia*. Hasselquist saw it used with the greatest success.]

imagined to act either by a direct effect upon the worm, or more probably by virtue of some tonic property. Of this kind are the *artemisia sanctonicum* or worm-seed,* the male fern root,† the *spigelia marylandica*, and *geoffræa inermis*.‡

Lastly, there are certain anthelmintics admitted into common practice, whose operation it would be difficult to explain on any ascertained principle; such as the do-

* [The *Chenopodium anthelminticum*, which grows in this country, is also a valuable anthelmintic. It is difficult to procure it of a good quality: as a mixture of the oil of turpentine, and that of the *chenopodium ambrosioides* is often sold for it. From 5 to 8 drops of the real oil is given at a dose on a little sugar, or a table spoonful of the expressed juice.§ The *liriodendron tulipifera* is also mentioned as being successful in *ascarides*.|| It is used in injection.]

† [Dr. Barton speaks highly of the tea of the *Laurus Benzoin*, as an anthelmintic. Its virtues deserve a trial.¶ Dr. Drake also mentions the *lobelia cardinalis* as an anthelmintic.**]

‡ [Tansy, rue, and wormwood were formerly celebrated; as tonics they are useful in the worms of children, who are of a debilitated and relaxed habit. The male fern has considerable virtues; it is given in the dose of two or three drams, followed by a brisk cathartic. The dose of the *geoffræa inermis* is ℥i. to ℥ii. in powder.

The encomiums bestowed on the *punica granatum*, as a remedy for *tænia*, have induced a trial of it in this country. Dr. Mease witnessed a case in which it completely removed this horrible disease. It is given in the decoction of the bark of the root, previously macerating it for a few hours. Half an ounce of the powder should be boiled for 20 minutes, and the patient should take a wine glass full every three hours, till the worm is discharged. The *melia azederach* has been administered with the best effect by Dr. Eberle, as we learn from his *materia medica*. It must be given with caution: half an oz. to an oz. of the decoction every hour is the dose.]

§ W. P. C. Barton's *Veg. Materia Medica*, vol. ii. p. 188.

|| *Ibid.* p. 108.

¶ *Ibid.* p. 795

** *Ibid.*

lichos pruriens, tin powder,* strong brine,† and assafoetida. Some powerful drugs have been recommended

* The student will cautiously refrain from exhibiting the *flings* of tin, which have been known to prove highly irritating and deleterious. Even the tin powder is a medicine of very questionable safety. 'It is generally given in the dose of ℥i. two or three times a day, in molasses or jelly. Its danger in the form of emulsion, is confirmed by the following fact : Dr. Wilson had a case of *tænia*, in which an amalgam of twelve oz. of tin and the same quantity of quicksilver, was given to the patient ; (℥i. quaq. hor.) A great part of the amalgam was not discharged, but remained in the bowels ; appearing in the form of a large mass in the intestines, of a roundish figure, distinctly perceptible to the touch, on pressure. This practice is recommended by Dr. Darwin.‡ Another case is related by Dr. Gallus, in which the same lamentable consequence followed.

Hydrocyanic or prussic acid has been applied to a *tænia* which in part protruded from the anus ; it was discharged dead, in a short time afterwards.§ Brera advises a thread of silk to be passed round the worm when it protrudes, and when from its motions it appears to have a disposition to discharge itself, the person should go to the close stool, and it will soon detach itself and may be drawn away with the *fæces*. From the fact that cold water throws the *tænia* into a state of asphyxia, Darelius gave large draughts of it after a purgative, and repeated it frequently, and with the effect of discharging the *tænia*. Others have tried it with the greatest success. Brera advises a cold solution of the sulphate of soda, which taken largely, is proved to be a poison to this worm. Electricity, applied by a shock, to the *tænia*, when protruding from the anus, has been tried in Vienna without success : it deserves another attempt. The *tænia* has also been passed into a canula, when hanging from the rectum ; the canula was then introduced into the gut, and the *tænia* drawn away.'

* [An interesting case is related in the medical transactions, which was cured by two lbs. of salt dissolved in two quarts of spring water, taken in the morning. Vomiting, purging, and strangury, and a large discharge of worms were the results. It was repeated and the patient was perfectly cured.

The *dolichos pruriens* is administered in the dose of a tea-spoonful to a child ; in jelly or molasses, and followed by some mild laxative next day.]

† Philad. Journal, vol. i. p. 136.

§ Med. Recorder, No. 30, p. 420.

with the view of *poisoning* the worm, such as tobacco, arsenic, hellebore, and 'muriate of lime.' The remedy, however, is here worse than the disease.*

* [Gamboge is often very useful, particularly in expelling the tape worm. It operates solely by its active cathartic qualities. Mare's milk has been celebrated in the same variety: it is taken in the dose of two tea cups full night and morning.

M. Cloquet states that he has known the lumbricoides evacuated by rubbing the belly with a mixture of ox-gall and common soap; with the oil of tansy and chamomile, strongly impregnated with camphor and garlic, or with milk holding aloes in solution, and also the bitter principle of the colocynth and camphor, and with a *maceratum* of bruised garlic, in camphorated sulphuric ether.† He attributes a similar effect to a plaster of yellow wax, assafoetida and galbanum. The oleum empyreumaticum chaberti, prepared from one part of the foetid or empyreumatic oil of hartshorn, and three of the essential oil of turpentine, well mixed together and suffered to remain at rest for four days, and then distilled in a sand-bath until three-fourths of the liquor has passed over, is highly celebrated. It is to be kept in a bottle, with a well secured glass stopper, and to be preserved from light.

This remedy is administered in the following manner by Bremser. He first premises the plan of treatment pursued by Frank; commencing with the following electuary.

R. Semin. Santonicæ aut Tanaceti
Vulgaris ruditer contusor. ℥ss.
Pulv. Rad. Valerian. Sylvest. ℥ii.
—Jalap. ℥ss. vel. ℥ii.
Potass. Sulphat. ℥iss. vel. ℥ii.
Oxymell. scill. q. suf. ut. fiat.
Electuar. —

Take two tea-spoonsful twice or thrice a day till the whole is consumed. Afterwards two desert spoonsful of the above oil, are given, morning and evening; diminishing the dose, if the oil should act too powerfully on the nervous system, or on the bladder. In ten or twelve days the following purgative is given.

R. Pulv. Rad. Jalap. ℥i.
Folior. Senn. ℥ss.
Potass Sulphat. ℥i. m.

† Duaglisson on Intestinal Worms, p. 66

Too much stress has undoubtedly been laid on the administration of these *direct* vermifuges. Practitioners seem to have lost sight of those greater principles which should regulate their treatment, and which are fairly deducible from the views formerly taken of the *habit* of body in which worms appear. The principal object should be to strengthen the system generally, and the digestive organs in particular; and to excite that energy in the constitution which may enable the intestines to expel the worms, and to *resist* their subsequent formation. The means by which these ends are to be obtained are the same which apply in ordinary cases of dyspepsia. The diet of the patient is carefully to be regulated. Digestion is to be promoted in languid habits, by the use of bitters and stimulants. A regular action of the bowels is to be kept up, and accumulation prevented, by small doses of rhubarb in combination with the extract of chamomile.* The general system is to be strengthened by

This powder is to be taken every hour till full evacuations are produced, and persisted in till six, seven, or eight ounces have been taken. This treatment is slow, but it is safe, and certain. If there should be a marked disposition to the formation of these worms, the use of the following drops is recommended.

R. Tinct. aloes. Compos. ℥i.

—Ferri. Pomati.† ℥i.

Elix. Vitriol. ℥ss. m.

Ten, twenty, or thirty drops of this mixture, may be given three or four times a day in a glass of wine or water.

The animal empyreumatic oil, it is probable, adds something to its virtues; the turpentine however is the chief ingredient.]

* [Charcoal is strongly recommended by Pallas, as valuable against

† The Tinct. Ferr. Pomat. is thus prepared.

R. Ferr. rubig. in. pulv. trit. lbii.

Succ. malor. acerb. lbiv.

Macerate them for some days, and reduce them to the consistence of an extract. Dissolve two ounces of this extract in two lbs. of cinnamon water.

daily exercise in the open air, by the cold bath when the season permits, and partly too by the use of some preparation of steel.

worms. It most probably operates by strengthening the digestive powers, and as a purgative. It may be given in the dose of a scruple, two or three times a day. It should be combined with rhubarb, or some mild purgative, as if it is not carried off it forms concretions in the bowels, which may be dangerous.

Garlic also operates on the digestive functions. It has long been celebrated as a powerful anthelmintic, and may be taken in the quantity of a clove or two night and morning. Tissot and Rosenstein discharged entire *tænia* by this medicine alone.

Among the mineral vermifuges may be mentioned the muriate of ammonia, combined with rhubarb or jalap, in the quantity of \mathfrak{z} i. of the former, with half a scruple of either of the two latter, every half hour; the dose always being suited to the age.* The muriate of barytes has been given with the greatest success by Hufeland. It must not be given, however, in irritable and inflammatory habits: it may be taken in solution. The preparations of iron are also valuable; both the rubigo ferri and the sulphate; the former in the dose of 5 or 6, and the latter in 2 or 3 grs. every three or four hours, to a child five or six years old.† Mercury has been given in various forms: in its unoxidized state, it has no virtues; its solution in boiling water is also inert. Calomel, as above stated, has an anthelmintic virtue; but it must not be pushed to salivation, otherwise the debility will favour the disease.]

CHOLERA INFANTUM.

[This disease generally appears in the middle states of North America about the end of June or beginning of July, continuing during the summer. It arises from the heat, and generally commences in young children, from a few weeks after birth till two or three years.

Symptoms. Vomiting—purging of green or yellow matter, of slime, or of blood attended with pain or uneasiness, swelling of the belly, with some heat of skin and exacerbation towards evening.

The hot weather appears to be the cause of the disease. It is generally aggravated by dentition, or the excessive use of fruit. It is considered by Cleghorn and Rush, as a variety of the bilious remittent fever. It is to be treated according to the rules laid down, under fever, dysentery and cholera, according to circumstances.

* Brera on Worms.

† Ibid.

Remedies. Small doses of calomel frequently repeated are the best purgative in this disease: they should be preceded by an emetic of ipecacuanha, or antimonial wine: charcoal and magnesia are also recommended. If there be much acid, magnesia will be the most proper medicine. A mixture of carbonate of soda and rhubarb, in the following formula, will be found to be valuable.

R. Carbon. Sod. ℥ii.
 Rhei. pulv. ℥ss.
 Mucil. Gum. Arab. ℥vi.
 M.—℥ss. q. secund. hor.

Dr. Miller of New York, speaks highly of small doses of calomel, combined with opium (one gr. to $\frac{1}{20}$ or $\frac{1}{4}$ or $\frac{1}{2}$), according to the case; the quantity being increased or diminished, according to the freedom of the evacuations. The calomel has the advantage of being with difficulty rejected, and is very efficacious. With regard to the opium, we are disposed to agree with Dr. Eberle, in his excellent book on the materia medica, that opium from the tendency to disease of the head, is by no means suited to cholera, except in the chronic cases.

Dr. Rush recommends calomel, castor oil, and magnesia, and considers rhubarb improper when the stomach is very irritable. He remarks that when the offending matters have been discharged from the bowels, purgatives should not be given, but that the disease should be treated as a common diarrhœa, with chalk, peppermint, and laudanum. Demulcent and diluting drinks, clysters of flax-seed tea, mutton broth and starch, with a little laudanum in them, to give ease to the patient, and to calm irritability are then proper; with plasters of Venice treacle and warm fomentations to the abdomen: they should be made of spirits, brandy, volatile liniment, &c.* After the violence of the symptoms are over, then the bark should be given in decoction, or in substance, with nutmeg: administering as they recover, such digestible substances as their craving appetites may require. Dr. Rush states that he has seen butter, the richest gravies, and rancid cheese, which were longed for by the patient, not only do no harm, but a great deal of good. The warm as also the cold bath, the same author states, were useful in relieving pain; but above all the country air, which operates as a cordial, often dispelling the disease at once. Cleanliness, the use of flannel, the cold bath, the removal of children to the country, abstinence from all fruit, or indigestible food, are the best means of prevention.†]

* Rush.

† Ibid. vol. ii. p. 370.

CHAP. VI.

INFANTILE FEVER AND MARASMUS.

Diversity of Views which have been taken of infantile Hectic—General Character of the Symptoms—Circumstances under which it occurs—Exciting Causes—Extensive Influence of Derangements of the Stomach and Bowels—Predisposing Causes—Prognosis—Appearances on Dissection—Principles of Treatment in infantile Fever and Marasmus.

IN all systems of nosology *atrophy*, or emaciation, has been considered as a disease comprehending under it a great variety of species. In practice, however, it can never be viewed but as a *symptom*, referable to some ulterior cause, and never of itself leading immediately to treatment. Of all the species of atrophy which have been described, there is none so common, or so uniform in its accompanying symptoms, as that which occurs in early life. The general wasting of the body is then attended with fever of a slow remitting kind, which being an equally prominent feature of the complaint, has in many cases given a name to it. The student will accordingly find the disease described in different works, under a variety of names, according to the views which have been

taken of it:—infantile hectic, infantile remitting fever, worm fever, atrophila infantilis, tabes mesenterica, mesenteric fever, diseased mesenteric glands, marasmus. All authors have agreed in acknowledging its close connexion with a disordered condition of the abdominal viscera, either structural or functional; and as it is strictly a *chronic* disease, this is obviously the right place for entering on its investigation. The title which I have preferred is that which is now commonly adopted in this country. In its early stages, while fever gives the disease its character, it is natural also that it should give it its name. At a more advanced period, particularly when *structural* derangement of the abdominal viscera has supervened, it is usual to call it marasmus; but the denomination is of course of trifling importance if the true nature and causes of the disease are well understood.

The following may be taken as a general outline of the symptoms of this complaint. It makes its advances very gradually, manifesting itself by irregularity in the bowels, and slight daily accessions of fever, during which the patient is drowsy. The appetite is variable, the tongue often unaffected, but the pulse is præternaturally quick. In the intervals of the paroxysms the child appears perfectly well. After a time, varying from one to three, or even four weeks, feverish symptoms come on, of a more violent kind, perhaps lasting for several days, during which the cheeks are flushed, the skin is exceedingly hot and dry, and the pulse a hundred and forty in the minute. There is also very often delirium.

Digestion appears now to be perfectly at a stand. The food passes off without undergoing any change but what results from its exposure to heat and moisture. The fæces are altogether devoid of their natural smell and appearance. The appetite is so totally destroyed, that for many days toast and water, or the juice of an orange,

constitute the whole nourishment. It is not to be wondered at, that under such circumstances emaciation should take place, and even go on rapidly. The child loses all spirits and strength, and refuses to be moved from the bed. There is a very striking symptom of the complaint too, which all authors have noticed,—an incessant picking of the skin of the lips and face, and fingers, apparently connected with their dry and rough state.

The presence of so much disease, if unchecked, still more if aggravated by improper management, brings in its train consequences of even a more formidable character. In some cases the brain and nervous system particularly suffer, and there come on symptoms so closely resembling those of genuine hydrocephalus, that it would be a waste of time to attempt a diagnosis between them.

At other times the brain is unaffected, and the violence of the disease falls upon the abdominal viscera. There is pain in the bowels, more or less constant, often very acute, and causing the child to keep his legs continually drawn up towards the belly. The lips are of a deep red colour, the angles of the mouth beset with small ulcers, or the whole lip divided by fissures. The bowels are variable, though commonly relaxed. The abdomen gradually enlarges, and feels full and tense, while the other parts of the body waste. Emaciation indeed goes on in this state of the disease very rapidly and extensively, and gives a well marked character to it. The cheeks fall in, and, unless flushed with fever, are of a marbly whiteness. The nose appears lengthened; the eye glassy and sunk in its socket. The same whiteness is observable over the whole frame, and the superficial veins are therefore more than commonly distinct.

Lastly, it is not uncommon to find the thoracic viscera implicated, either with, or without the mesenteric obstruction now described. The child is said to *catch a fresh*

cold. Cough comes on, with some shortness of breath and expectoration of puriform mucus, and ultimately the child becomes decidedly *consumptive*.

It is an object of importance to determine under what circumstances this peculiar combination of symptoms occurs, for by this we shall be led to form a just estimate of the causes and general pathology of the affection. It *never* occurs to children at the breast, where the mother is healthy, and the milk abundant; but they often suffer from it, where the milk of the mother is insufficient for the support of the infant. It requires but little acquaintance, however, with infantile remitting fever to know, that it is after weaning that it chiefly prevails, and that its principal cause is improper feeding, and consequent bad digestion. From the moment the child is taken from the breast it becomes exposed to it. It may then be supplied with food unfitted for its age, though otherwise wholesome; or with food unwholesome at all ages. Its nourishment may be given too thick or too thin,—too frequently or too rarely,—too much or too little in quantity. It is very difficult for an adult (at least without experience) to form an accurate notion of what is fit for the stomach of a *child*. But of this we may be sure, that whatever is given to the child that is not digested, may justly be considered as sowing the seeds of subsequent disease. If not quickly discharged from the body by diarrhœa or vomiting, it injures by slow and often imperceptible degrees the digestive organs, *depraves* the humours, weakens the general habit, develops the scrofulous taint, brings on in some cases worms, and in the end, remitting fever, diseased glands, and a fatal marasmus. A thorough conviction of this should be impressed on all those who are in any manner intrusted with the management of children.

But while I am thus advocating the extensive influence

which derangements of the stomach and bowels have in the production of infantile hectic and its consequences, I am not insensible that other causes are also to be taken into consideration. It appears to me, indeed, that modern pathologists are *too exclusive* in their opinions concerning the origin of this disease. It cannot, for instance, be overlooked, that it is in the period of dentition that this disorder, in many instances, first manifests itself. The disturbance which difficult dentition produces in the infant constitution is often extreme; leading to general feverishness, hydrocephalus, convulsions, peripneumony. Its influence upon the abdominal viscera is equally apparent in the disposition which it gives to diarrhœa. That it may serve as an *accessory* cause to genuine remittent fever, cannot, I should suppose, be doubted. In like manner, it is very common to find the most unequivocal symptoms of *marasmus* supervening on hooping cough. In some cases I have seen these connected with *worms*, and disappearing when they were expelled; but it cannot thereby be argued that they were owing to the worms. It is more consonant with sound pathology to consider them both as *effects*, depending on general derangement of the digestive organs, and of the whole system, and therefore removed by the same treatment.

Whether the constitutional irritation brought on by hooping cough and painful dentition be not of itself sufficient to induce remittent fever, without the intermediate stage of disturbed digestion, is well worthy of consideration. It probably is so, considering how much in the pathology of this disease depends on the higher degree of irritability in the infant than in the adult frame. The notion of an *idiopathic* hectic was entertained by John Hunter; and, though difficult to reconcile with commonly received opinions, is probably correct. In the predisposition to infantile fever we are not to neglect the influence

of a scrofulous or naturally delicate habit, and perhaps more depends upon this than is often imagined. How else can we explain the fact, that among so many thousand children who are improperly fed, a small number only are attacked by infantile fever? Such a weakened habit is in some instances the consequence of a poor diet, bad air, and scanty clothing; but the disease prevails also among children in the first ranks of society. Its first approaches are attributable, in many instances, to the cold of winter; and this consideration may serve, among other arguments, to show that the sources of infantile and of the more common varieties of continued fever are more nearly allied than modern pathologists for the most part admit.

Infantile hectic proves in many cases very obstinate, and in no small proportion fatal. The chance of recovery varies with many circumstances which hardly admit of precise detail; such as the natural strength of constitution, the time which the disease has lasted, and the attentions of those about the patient. In its early stages, it is not difficult of cure; but when, commencing gradually, it has at length come to disorder the whole system, it requires constant and *close* attention to ensure the safety of the child. It frequently subsides for a time, and then recurs with even increased violence, not merely from irregularities in diet, but at a moment perhaps when the greatest attention is paid to diet and regimen. Under the best management, indeed, infantile remittent fever occasionally proves fatal, and that without any structural derangement. In such cases it appears that the constitution sinks under the exhaustion consequent upon long-continued excitement. On dissection, the bowels have sometimes been found greatly distended, sometimes more than commonly empty.

When the disease is more rapid in its progress, it is not

uncommon to find, on examination after death, extensive ulceration of the mucous membrane of the bowels, with or without disease of the mesenteric glands. Sometimes the only morbid appearance has been enlargement and ulceration of the mesenteric glands, of a scrofulous character. This circumstance has induced some pathologists to describe an affection having its *primary* seat in those glands; and Dr. Pemberton* has been at pains to *distinguish* such a disease from infantile remitting fever, though I think unnecessarily. In many cases the lungs are found studded with tubercles, more or less advanced to suppuration.

That there exists a primary chronic inflammation of the *peritonæum*, attended with hectic fever and emaciation, I am well persuaded; and the peculiarities of this form of marasmus will be found described in the Medico-Chirurgical Transactions.† It appears to occur only in scrofulous habits, and to have for its diagnostic symptoms excessive tenderness of the abdomen, paroxysms of acute lancinating pain, and after a certain time, the evacuation by stool of very large quantities of a thick white matter wholly different both from the usual appearance of *fæces*, and from the slimy stools tinged with bile which accompany the common form of infantile hectic. On dissection the viscera of the abdomen are found united together into one undistinguishable mass. The mucous membrane of the bowels appears ulcerated through in various places, and communicating freely with the thickened and ulcerated *peritonæum*. The matter observed within the abdomen corresponds perfectly with that passed during life by stool. The disease appears to be uniformly fatal.

* Treatise on the Diseases of the abdominal Viscera, p. 194.

† Vol. xi. p. 258.

The principles of treatment in infantile remitting fever are now, and have long been well ascertained. To establish a good digestion, to allay that morbid irritability which prevails in the whole system, and to resolve mesenteric obstruction, are our primary objects; in accomplishing which we have recourse to aperients, tonics, narcotics, and deobstruents, either separately or combined, according to the state of the patient and stage of the disease. It is easier, however, to lay down indications of cure than to carry our views into practice. The fretfulness of the child, the irritability of the stomach, the perverseness of attendants, unite with the natural obstinacy of the disease in opposing the most serious obstacles to our success. In the treatment of all diseases attention to detail is useful, but here it is *indispensable*.*

Calomel is often resorted to as a *panacea* in this complaint, and under judicious regulation it is of infinite service, both as aperient and alterative; but if given in too large doses, or too frequently, or when the stomach and whole system are labouring under high irritation, it will only aggravate the evil. It must always be employed with great caution, and its effects *carefully* watched. Where the disease is recent, and the strength not much impaired, it may be given advantageously in full doses along with scammony, under the old form of the *pulvis basilicus*†—

* [The treatment of this disease should be commenced by an emetic; the patient should be kept perfectly quiet and still; all light should be secluded, and troublesome visits from playfellows; all talking and tossing about in bed should also be avoided. The diet should be broth, gruel, sago, tapioca. It should be both diluting and nourishing; all solid food should be avoided,‡ and likewise cow's milk.]

† [Calomel, when given at night, often produces sound sleep, and an increase of appetite in the morning; and it appears to have this effect

‡ Butler, p. 42

R. Calom. gr. ii.
 Scammon. gr. iv.
 Sacch. purif. gr. ii.
 M. f. pulv. nocte sumend.

When very high febrile excitement prevails, it will be advisable to substitute the blue pill with ipecacuanha—

R. Pill. hydrarg. gr. xv.
 Ipec. gr. iii.
 M. f. pill. vi.
 Sumat. i. q. hor.

A moderate action on the bowels may be kept up by small doses of rhubarb, given at night, in combination with the sulphate of potash (five grains of each;) but the student will remember that active purging is in most cases far from being desirable. It tends to weaken the stomach and bowels, and therefore impedes the great object, a return to healthy digestion.*

Where much irritability 'and diarrhœa' prevail, advantage will be derived from some of the mild narcotics.

more than any other medicine. If the secretions from the bowels and the liver are deficient, or superabundant, it is alike useful. Dr. Ayre recommends it in small doses ($\frac{1}{8}$ or $\frac{1}{4}$ of a grain every half hour,) or by giving a dose once in twenty-four hours, and then following it with a purgative. When the bowels are constipated, he gives it in larger doses, and follows it up with other purgatives; at the same time regarding as a general rule one free and active evacuation as sufficient. When the bilious stools return after convalescence has begun, rubbing the right side with mercury has a valuable effect† in restoring the action of the liver.

Where prejudice prevents the exhibition of the calomel, sulphate of soda, or magnesia, will be found to answer: rhubarb is also valuable.]

* [This practice entirely suits this country: practitioners generally agree in this matter. Dr. Eberle, in his valuable book on the *Materia Medica*, gives the outline of treatment to be pursued in this disease in a few words: the continued employment of purgatives, with the use of light but nourishing food, are its prominent and leading features.]

† Ayre, p. 166.

Three grains of the extr. conii may be given according to the following formula—

R. Extr. con. gr. iii.
Sulphat. magnes. ℥i.
Aq. carui. 3v.
Syr. rhœad. 3i.
M. capt. ter die.*

When the paroxysms of fever are less severe, it will be right to commence the use of a slight tonic, such as the infusion of calumba or cascarilla, in which some gentle aperient may, if necessary, be dissolved.

R. Cascarill. cort. et calumb. a 3i.
Aq. fervent. 3vi.
Frigido adde tinct. calum. 3iii.
Spirit. ammon. aromat. gtt. xxx.
Syrup. aurant. 3iii.
Cap. 3vi. bis vel ter die.

Where we have reason to believe that the mesenteric glands are becoming affected, half a grain of calomel should be given every night.

It is unnecessary to say, that the most scrupulous attention must be paid to the regulation of diet. It should consist chiefly of farinaceous food, but a small quantity of plain-dressed animal food may be allowed when the age of the patient permits it.† Wine is hardly ever required. When the strength of the system has been a little recruited, gentle exercise in the open air will con-

* [Dr. Butler advises the use of the hemlock in the strongest terms ; it subdues fever, promotes appetite, the strength and the spirits. The elixir vitriol, given throughout the day, has a good effect. When there is great pain, the bowels should be fomented with cloths wrung out of decoctions of chamomile.]

† It may be right to mention, that genuine infantile hectic has been observed to *commence* as late as the ninth or tenth year of life.

tribute materially to recovery. Change of air is very advisable where it can conveniently be obtained.*

This very imperfect sketch of the treatment to be pursued in infantile fever and marasmus, is intended only to impress upon the mind of the student how many objects must engage his thoughts, and how essentially necessary in the management of all the diseases of infantile life is attention to minutiae.

* [As soon as the strength is pretty well recovered, a full and nourishing diet, with a moderate allowance of wine, will be proper: the breast of the mother, however, will furnish the best food, as soon as the strength is recruited: and during convalescence, the shower bath will have the happiest effect: sponging with cold water will answer equally well: the clothing should be warm and comfortable, particularly about the hips. This treatment is best suited to infantile remittent fever, when it is connected mainly with a disordered state of the liver. When it proceeds from worms, the medicines recommended under that head must be had recourse to; if from poor diet, it must be changed; if from a syphilitic taint, mercury is indispensable, with the decoction of the woods; and if from scrofula, the medicines recommended under that head must be tried.]

CHAP. VII.

ABDOMINAL HÆMORRHAGE

Varieties of abdominal Hæmorrhage—Hæmatemesis—Passage of Blood by Stool—Their Causes and Mode of Treatment—Hæmorrhoids, or Piles—a functional and structural Disease—Causes of Piles—Symptoms occasioned by them—Treatment.

IN the present chapter I propose to direct the attention of the student to hæmorrhage as it occurs from the stomach and intestines. The former has been well denominated hæmatemesis. The term hæmorrhoids, or piles, is appropriated to that form of the disease where hæmorrhage takes place from vessels on the verge of the rectum. To the flow of blood from the intestinal canal generally, no appropriate designation has ever been given. The terms *melæna*, and *hepatirrhæa* have occasionally been applied to it; but I would venture to suggest that of *entirrhæa* as, upon the whole, more advisable. In all cases the blood escapes from the minute vessels ramifying on the mucous surface of the bowels. The peculiar disposition of mucous membranes to the effusion of blood has been already exemplified in the case of epistaxis and hæmoptysis. The principle is equally well illustrated in

the phænomena of abdominal hæmorrhage; and it will be a chief object with me to point out under what circumstances of disease, either in the system generally, or in the abdomen in particular, the mucous expansion of the alimentary canal becomes so disturbed in its function that hæmorrhage takes place from it. An affection of this kind is sometimes primary and idiopathic, arising from accidental causes, such as severe horse-exercise, or a blow on the stomach; but it is chiefly a consequence of different kinds of functional disease in *other* organs, of which the following are the most important.

1. Vomiting and purging of blood occur in the first place, symptomatic of general febrile disease, of a highly *malignant* or typhoid character. Under such circumstances they are usually associated with petechiæ, and a *dissolved* and putrid state of the blood; and constitute but a part of the symptoms which mark that very peculiar and most formidable state of the nervous and vascular systems. I have seen them usher in the attack of small-pox, as well as of idiopathic *petechial* fever. It is unnecessary to say, that such symptoms indicate the greatest danger, and are seldom, if ever, recovered from.

2. Hæmatemesis, with which entirrhiœa frequently concurs, has long been known to be a complaint of young unmarried women, between the ages of fifteen and five-and-twenty, more especially such as are of a full plethoric habit. The matter rejected is seldom pure blood. It rarely coagulates, and should rather be characterized therefore as a morbid secretion of the stomach *tinged* with blood. This hæmorrhage is scarcely attended with danger, and in many instances, even though profuse, is unaccompanied by any signs of debility. It has been observed to last for a great length of time uninfluenced by medical treatment, and to yield spontaneously. In a

large proportion of cases it is unquestionably connected with, and *probably* dependent upon, a deranged state of the uterine functions, more particularly amenorrhœa. In some instances the vomiting even seems to be *vicarious* to the menstrual discharge.

3. Hæmorrhage from the stomach occurs, in the third place, along with costiveness, colic, and other marks of simple functional derangement of the *bowels*. In this and the following varieties, the discharge is often of pure blood, and is succeeded by faintness, a feeble pulse, and other alarming symptoms. The complaint has not unfrequently been mistaken for hæmoptysis; from which, however, it may always be distinguished by accurate inquiries. It occurs to young females, sometimes with, sometimes without irregular menstruation; and to elderly persons of both sexes. It is commonly preceded by languor and oppression about the præcordia, cough and dyspnœa, headache, vertigo, and disturbed sleep, a dullness of the eye, and feeble pulse. Constipated bowels, however, appear to be the *leading* feature of the complaint. The *æces*, when brought away, are unnatural in colour, consistence, and smell.

4. Hæmorrhage from the stomach and bowels sometimes proceeds from disease (chiefly organic) of the liver, and is here referable to the difficulty experienced in the transmission of blood through the vena portæ. These cases of hæmatemesis are generally attended with dropsy, and a swelled state of the veins of the abdominal parietes. The discharge of blood is often one of the immediate forerunners of death; and I have noticed, that on dissection nothing is observed which can lead to a knowledge of the *immediate* seat of the hæmorrhage.

5. Hæmatemesis and entirrœa, lastly, are to be traced in a few instances very distinctly to disease of the spleen.

This organ may then be felt more or less enlarged ; and the discharge of blood from the stomach is complicated with epistaxis, and other marks of irregular action of the vascular system generally. The intimate connexion subsisting between the spleen and the stomach by means of the *vasa brevia* will sufficiently explain the manner in which the intestinal hæmorrhage occurs. In this and the preceding varieties of abdominal hæmorrhage the matter discharged has often the appearance and consistence of *pitch* ; whence the term *melæna*, or *morbus niger* was given to it. Such a disease is frequently to be traced to the excessive use of spirituous liquors, and is then, for the most part, preceded for several days by very acute pain about the præcordia.

The treatment of these different varieties of abdominal hæmorrhage will depend on the nature of the exciting cause, and the habit of the patient. In young women it is often useful to take away blood by the arm, and to repeat this evacuation occasionally, according to the urgency of the symptoms. Purging is adapted to almost every form in which the affection occurs ; and provided the strength of the patient is but little impaired, full purging may be safely resorted to. Where the liver is diseased, and the constitution injured, the bowels may be simply unloaded by castor oil, or gentle doses of Epsom salts. In a few cases it may be necessary to have recourse to astringents. The mineral acids, alum, and the combination of kino and opium, are those upon which our chief reliance may be placed. ‘The muriated tincture of iron has been very useful, given in the dose of twenty or thirty drops in cold water, repeated every half hour. Spermaceti, rubbed up with the yolk of an egg, has also been much praised ; also blisters to the belly.’ Lastly, the oil of turpentine, in moderate doses, has sometimes

been found of service in checking the disposition to hæmorrhagy.*

The hæmorrhoidal flux occupied an important place in all the old systems of physic. It was believed to be a salutary provision of nature, a special effort of the vis naturæ medicatrix, for the advantage of the constitution. The sudden suppression of it, therefore, was highly dreaded. These notions have passed away; and piles are now considered as a painful and disagreeable complaint, arising in most cases from local causes, the cure of which should never be delayed.

It is a curious circumstance, that pathologists are not yet agreed regarding the true nature of hæmorrhoidal tumours. According to some, they are varicose expansions of the veins of the rectum. The more general, and doubtless the more correct opinion is, that these tumours are formed by blood extravasated under the mucous coat of the rectum, and that the cyst of the tumour consists of this membrane rendered tense by pressure. Hæmorrhoids have been divided into the external and the internal, the blind and the bleeding; but these distinctions are of little use in practice, and of no importance whatever in pathology. The only division of the disease which has any practical bearing, is into the functional and structural; or, in other words, the *accidental* and *permanent piles*. Whatever notion may be entertained regarding the *essential* nature of hæmorrhoidal tumours,

* [Dr. Sheridan relieved several cases by giving a vomit of ipecacuanha. The bleeding had debilitated the patient excessively. In the other, there was excessive pain across the stomach, with great oppression and palpitation of the heart: in both cases the medicine gave relief at once.]

all authors agree, that in cases of long standing their contents coagulate and become solid, their coats increase in thickness, and they resemble pendulous excrescent tumours in other situations in the body.

Hæmorrhoids vary very much in size and form. Some are hardly larger than a pea, while others exceed a hen's egg in size. The symptoms which they occasion may be divided into such as occur in accidental piles (which are obviously referable to the same condition of the body which produces the tumours,) and such as attend permanent piles (as plainly referable to their bulk and mechanical inconvenience.) Accidental piles are frequently attended with a sense of heat and pain at the extremity of the rectum and in the loins, headache and giddiness, flatulence, and not uncommonly marks of general feverishness, such as dryness of the mouth and fauces, scanty and high-coloured urine, with a frequent desire to void the urine and fæces. The evacuation by the bowels is painful, and very often occasions the tumours to bleed. In many cases they inflame, sometimes without any obvious cause, but more usually from becoming strangulated by the sphincter ani. The pain which they then create is often extremely acute; 'they often suppurate and end in fistulæ.'

The permanent *organized* piles produce in many instances a degree of inconvenience which interferes most seriously with the active duties and comforts of life. Even when altogether *internal*, they impede by their bulk the passage of the fæces, give rise to severe pain whenever the bowels are emptied, and gradually bring on that train of evils which necessarily follows long-continued constipation. The extent of hæmorrhage from them is also such as to occasion in many cases considerable uneasiness. This state of the disease arises, it may be presumed, from a continuance of the same causes which

lead to the accidental, or acute hæmorrhoids. With these alone the physician is concerned. When the internal membrane of the rectum has become permanently thickened, the disease can be relieved only by surgical operation. In this place, therefore, my attention will be directed exclusively to the consideration of the causes and method of treatment of the primary or *accidental* hæmorrhoids.*

1. Piles are frequently a symptom of general febrile excitement. They arise from over-indulgence in food of a too stimulating quality, and the free use of heating wines, such as Champagne. They occur, therefore, along with common febrile symptoms, and for the most part yield spontaneously on a recurrence to a mild and unirritating course of diet.

2. Piles arise, in the second place, from any circumstance that impedes the regular action of the great intestines, so as to cause *straining*. They may concur, therefore, either with costiveness or diarrhœa. A confined habit of body is that which of all others is most disposed to hæmorrhoids. Hence it is that they are so frequently met with in persons of *sedentary* occupation. But the continued use of aloes and other purgative medicines has been often followed by piles. It is fairly to be presumed, therefore, that straining at stool from any cause forces out blood into the cellular membrane

* [Sometimes the piles secrete a mucous fluid; they are then called, from their colour, the white piles. The discharge proceeds from the mucous follicles, at the extremity of the rectum; they are called blind, when they are hard and without any discharge. When inflammation produces an induration of their substance, they become caruncular, and permanent; and can only be cured by a surgical operation. Sometimes small tumours of the nature of warts rise about the anus, with a broad and sometimes a narrow base.]

at the extremity of the rectum, constituting an hæmorrhoidal tumour.

3. Piles appear to be connected in some cases with the local irritation occasioned by horse exercise, and the long continuance in a particular posture. It is a common complaint, therefore, with cavalry soldiers, and mail-coach travellers. Lastly, hæmorrhoids have been traced to causes impeding the free return of blood by the great abdominal veins. Hence also they occur symptomatic of pregnancy, and a diseased state of the liver.*

The treatment of hæmorrhoids may be discussed under the two heads of curative and palliative. When the disease arises from a *heated* state of the system it will be proper to give ten grains of antimonial powder every night on going to bed, with a gentle dose of some neutral salt the following morning. The diet should consist entirely of vegetables and puddings. When it depends upon a naturally costive habit of body, the regular use of some mild aperient, which operates gently and without straining, is indicated. Sulphur has long been recommended for this purpose, and may be given in combination with the electuary of senna,—

R. Confect. senn. ʒi.

Sulphur. lot. ʒss.

Syrup. tolutan. q. suf.

F. elect.—Cap. ʒss. ad ʒiss. every morning.

‘Injections of warm water before every stool will also be valuable. Cream of tartar, alone or in combination with sulphur, is an excellent laxative; also any purgative mineral water; molasses and water, &c.; a Seidlitz pow-

* [Sometimes the disposition to piles is hereditary: a disordered state of the digestive organs, often predisposes to them. Also age, sex, and climate, have an effect in producing them; the suppression of some evacuation also predisposes to them.]

der, taken early in the morning, and after it a little tea ; the infusion or decoction of taraxacum ; minute doses of ipecacuanha, or tartrate of antimony, and the blue pill, taken at night. He should avoid all violent exercise, and lying on a soft and warm bed, as they excite perspiration, and thus increase the constipation.* Regular walking exercise is often indispensable to that due action of the great intestines which is the surest preservative against piles.*

The local or palliative treatment consists in the employment of leeches and cold lotions, when much inflammation is present, with confinement to the horizontal posture ;† the careful return of the tumour within the sphincter ani, whenever it has been prolapsed ; and the application of an astringent ointment, where the membrane of the rectum is much relaxed, with profuse bleeding.

R. Ung. sambuc.

Pulv. gallar. a ʒss.

Liquor. plumb. subacetat. ʒi.

M. ft. unguent.

‘ The return of the prolapsed piles is to be effected by gently introducing the finger, well oiled, into the rectum, and passing up the tumours so as to force them within the sphincter.

‘ Leeches are particularly useful when the tumours are small, and become swelled in consequence of the pressure of the sphincter, and cannot be returned. When the tu-

* [Riding on a hard trotting horse, when the piles are not inflamed, is one of the most valuable remedies. Baron Larry advised soldiers to ride at a full gallop, and with the best effects in this malady.]

† [General bleeding will often be serviceable : it will reduce the fever, and prevent metastasis. It may also be used in conjunction with nitre, or the neutral salts, to keep the skin cool. When the sphincter acts spasmodically, bleeding will be of service.]

mours, however, are very large, the skin becomes thick, and leeches are unnecessary: the lancet may then be used; it always gives temporary relief.*

It is difficult to define in what cases, and on what principles, such stimulating substances as ‘cubeb,’ the conf. piperis nigri, or Ward’s paste (an electuary composed of black pepper, fennel seeds, and elecampane root) prove useful; but experience has fully demonstrated their power.† Under the same circumstances, small doses of balsam of copaiba have been employed with advantage.

R. Bals. copaib. gtt. xv.

Vitell. ovi. q. s.

Aq. cinnamom.

— distillat. a 3v.

Syrup. 3i.

M. ft. haust. ter die sumend.

‘It is principally in cases of long standing that these stimulating remedies are valuable. In the inflammatory, they would be hurtful.’ Injections of cold water have frequently proved serviceable.‡

* Calvert, p. 93.

† [Ward’s paste is made in the following manner :

R. Rad. enul. camp. et pip. nig. a lb. ss.

Semin. fœnic. lb. iss.

Mell. despumat. et sacch. purif. a lb. i.

First powder and mix the three first ingredients, and then make the honey and sugar over the fire into a clear syrup, and beat the whole into a mass.]

‡ [The local treatment often does great injury to the system, by translating the disease to some vital part. Apoplexy, dyspepsia, vomiting, and other diseases have been the result of their repression: it is therefore necessary to examine how far they are habitual to the system, and what constitutional diseases have preceded them. When the translation has taken place, the injection of warm fluids into the rectum, the steam of hot water directed to the anus, and leeches, will be proper; pediluvia, purges of aloes, rhubarb, and sulphate of soda. Desault re-

When piles and hæmorrhage from the rectum become complicated with a thickened, or otherwise diseased state of the coats of the mucous membrane, the efforts of the physician must be confined to keeping the bowels in a *natural* state, and to the avoiding of all such causes as may aggravate the sufferings of the patient. The daily passage of the fæces may be assisted by injections of warm water.*

commends repeated shocks of electricity : it should be applied in sparks. When the piles are about to appear, compression between the fingers occasionally is said to prevent their formation : the pricking sensation where the tumour is about to form, will be a sufficient evidence of the proper place to apply it.† If they have already appeared, and are internal, the introduction of a common candle will be useful. A sheep's gut introduced, and then distended with water ; an ivory cone, well polished, about the length of the fore finger ; have also been proposed.‡ Sometimes several of the tumours unite, and adhere so as to nearly obliterate the cavity of the gut : warm mucilaginous injections, and the rectum bougie introduced twice a day, then sometimes cures them. Dupuytren in these cases introduces a hollow instrument perforated at the sides, so contrived, that by opening the handles a portion of the tumid surface is protruded through the perforations : a cylindrical piece of hot iron is then rapidly introduced, so as to produce immediate sloughing and suppuration.§]

* [When hæmorrhage takes place, the patient should be kept perfectly quiet, and be confined to a horizontal posture ; also apply a solution of alum, made cold, to the part ; the chamber should be well ventilated, and the bed clothes light, and every thing that can excite either the body or the mind be avoided. And if it be very excessive, and from an orifice high up in the rectum, the injection of cold vinegar in water, or a solution of alum, will be proper.

Leucorrhœal discharges from the rectum are often troublesome. If inflammation be present, then leeches, cold lotions of white vitriol, iced water, a poultice with ice in it, will be proper. The discharge may be removed by slightly astringent injections, with the internal use of oil of turpentine, cajeput oil, balsam copaiba, &c.

Sometimes fissures and ulcers form in the extremity of the rectum ;

† Calvert on Hemorrhoids, p. 86.

‡ Bell's Surgery, vol. ii. p. 259.

§ Calvert, p. 94.

I beg to refer to surgical works, more especially to Mr. Abernethy's observations on hæmorrhoidal complaints,* for the most efficient mode of removing the disease in this its most aggravated form.†

and sometimes there is a painful state of its extremity, which is not connected with either of these lesions. Division of the sphincter ani, recommended for fissures by M. Boyer, does no good in this painful state of the extremity of the rectum, unconnected with ulcers. Sometimes fissures are produced and kept up by tumours in their neighbourhood; they are then cured by the destruction of these tumours by caustic, cautery, or excision. The painful state of the extremity of the rectum generally occurs on going to stool, ceases during sleep, and as it is attended with a spasm of the sphincter, is often of an intermitting character. M. Montegre recommends in this form as peculiarly successful, injections of cold water. The hyoscyamus, opium, stramonium, solanum nigrum, belladonna, preparations of lead, and vinegar, have all been recommended. The cold water, of all others, has been thought to be the most useful.]

* Abernethy's Surgical Works, vol. ii. p. 231.

† [The piles may be removed either by the knife or ligature. The chief objection to the latter consists in the great irritation produced by the violent compression of the tumour, which gives rise to symptoms resembling strangulated hernia—hiccup, vomiting, pain and inflammation of the abdomen: to prevent these effects, it has been proposed to divide the skin surrounding the tumour, previous to the application of the ligature. Where the tumour is a hardened caruncle, excision is preferable; in other cases hemorrhage renders it dangerous, particularly where the tumours are recent, large, and liable to bleed. With regard to the prevention of the return of piles, the patient should avoid sudden vicissitudes of weather, and damp, low situations, from the danger of suppressing the perspiration; apply the cold bath to the anus after every stool, by spunging the parts with cold water; wear flannel next the skin; avoid mustard, horseradish, and all spices; spirituous liquors, and all hot meats and drinks; the food should be light and easily digested.]

SEA SICKNESS.

[Symptoms. Aged persons and infants are most commonly exempt from this disease ; those of a dark complexion are most subject to it : it is sometimes so violent as to be attended with hemorrhage from the stomach, with a twisting and violent pain. Its symptoms, as described by Dr. W. P. C. Barton, in his edition of Gregory on Climate, are a slight giddiness, and a sense of tightness across the forehead ; considerable and distressing nausea, a sense of motion in the stomach, and soon after, violent and convulsive vomiting. A horizontal position below, or the free air on deck, allay it most. It is more violent in larger than in smaller vessels, where the motion of the vessel is more rapid and sudden. The constant effort of the mind to preserve its equilibrium, is the principal cause. The motion of the muscles is uninterrupted and constant, and this is the cause of the excellent appetite which is always felt at sea ; and when it becomes too great, it produces a debility in the brain, which is evinced by the sympathy of the stomach in vomiting.

Treatment. It is proposed by Dr. Miller of New York, as a preventive, that persons should accustom themselves to turn round rapidly, in order to be habituated to the motion of the vessel. As a sickness similar to that under discussion would be the result of this precaution, the first experiment may as well be made at sea.

Lying in a horizontal posture, with the eyes shut to avoid looking at the water ; keeping as much as possible on deck ; active exercise and hard labour ; and keeping the bowels freely open by purgatives ;* injections of sea-water and soap ; and compression of the abdomen by a handkerchief tied tightly round it.

After the commencement of the attack, if the stomach be cleared with sea-water, and spiced wine be taken pretty freely after it, the patient is much relieved. Laudanum, ether, Seltzer water, lemonade, and warm punch ; bitters, bark, tincture of columbo, &c., will be proper if the patient should be debilitated.]

* Dr. W. P. C. Barton, and Dr. Miller, p 368.

CLASS IV.

CHRONIC DISEASES OF THE URINARY AND
UTERINE SYSTEMS.

CHAP. I.

LITHIASIS.

Objects of Investigation in this Chapter—Depositions from the Urine, primary and secondary—Lithic Diathesis—Circumstances tending to induce or increase it—Depositions of oxalic Acid and of the cystic Oxyd—Phosphatic Diathesis—Principles of Treatment in calculous Affections generally—where the lithic Diathesis prevails—where the phosphatic Diathesis prevails—Application of these pathological Views to the determination of Questions connected with the operation of Lithotomy.

THE frequency of calculous disorders, and the distress which in their confirmed stages they create, have long made them an object of attention to surgeons; but it is only of late years that the *general pathology* of these affections (with which the physician is chiefly concerned) has been prosecuted with any degree of scientific precision. Scheele, in 1776, paved the way to a correct un-

derstanding of the subject by the discovery of uric acid ; but it was reserved for Dr. Wollaston, in 1797, to complete the groundworks of this branch of medical inquiry by his masterly analysis of urinary calculi, published in the Philosophical Transactions of that year. The investigation has been followed up in this country with equal diligence and success ; and the writings of Dr. Marcet,* Mr. Brande,† and Dr. Prout,‡ have put us in possession of a number of important particulars, bearing on the formation and pathology of depositions from the urine, which seem well calculated for discussion in an elementary work. It will be my endeavour, in the present chapter, to lay before the student a brief outline of the opinions of these authors, on the general questions connected with lithiasis.

Depositions from the urine are of three kinds: 1. Pulverulent or amorphous sediments ; 2. Crystalline sediments, usually denominated sand and gravel ; 3. Solid concretions, or calculi formed by the aggregation of these sediments. The some pathological doctrines are applicable to each of these forms of urinary deposition, which obviously can never be understood without a knowledge of the constituent parts of the urine, and of the changes which that fluid undergoes in the body, from agents which either act upon it chemically, or by laws peculiar to vitality. It is this which gives to the consideration of li-

* An Essay on the chemical History and medical Treatment of calculous Disorders. By Dr. Marcet. Second Edition. 1819.

† Observations on the medico-chemical Treatment of calculous disorders. By W. T. Brande. (Quarterly Journal of Science and Arts, vol. viii. ; and in Phil. Trans. for 1810.)

‡ An Inquiry into the Nature and Treatment of Gravel, Calculus, &c. By Dr. Prout. London. 1825.—Second Edition.

In the outline here given of calculous affections I have chiefly followed the views and arrangements of this last author.

thiasis an interest so much greater than could have been expected to belong to it. The inquiry, in fact, will be found to have a bearing upon *general disease*, as much as upon the deranged operations of the urinary organs, and to connect itself intimately with some of the most intricate points in physiology and pathology. It affords a remarkable instance of the application of chemistry to the theory and practice of physic; and though it would be highly unphilosophical to maintain that the history and treatment of calculous disorders depend entirely on chemical principles, yet it cannot be forgotten that before this branch of science was cultivated, our notions of lithiasis were vague and incorrect, and that now, the best pathologist, unacquainted with animal chemistry, is continually exposed to the risk of error.

The most general principle which can be taken as the foundation of our reasonings concerning lithiasis is the division of calculous deposits into *primary* and *secondary*, or those which take place when the disease *first* developes itself, and after it has subsisted for a considerable length of time. The primary consist of the lithic acid (either simple, or in combination with ammonia;) and of the oxalic acid in union with lime; the secondary, of the phosphoric acid combined in various proportions with lime, magnesia, and ammonia. The former derive their chief character from the acid which they contain, the latter from the earthy matters. The first are principally formed in the kidney, the second in the bladder. Hence the distinction into the primary and secondary deposits is nearly equivalent to *acid*, and *earthy, renal*, and *vesical*; but in the present state of our knowledge all these views of the subject require to be taken with certain limitations, nor do I propose them except as the basis of *elementary* instruction.

1. Under the general denomination of a *lithic* diathesis,

we may arrange, with Dr. Prout, all those states of the system in which lithic acid is either contained in the urine in more than its natural quantity, or in which the urine acquires a peculiar disposition to *deposit* it, even though its quantity is not morbidly increased.* These conditions of the urine may exist independently of each other; but in most instances they are present at the same time, constituting the *perfect* lithic diathesis. *Sediments* from the urine, having a lithic character, are usually of a brickdust or pink colour, though this is liable to some variation. They consist of the lithate of ammonia. The *crystallized* deposits, commonly called *red gravel*, are lithic acid nearly pure; and many calculi of a large size are composed of the same material.

Several circumstances tend to produce an excess of lithic acid in the urine, and these it will be proper to enumerate.

1. The presence of fever and of inflammatory action in some part of the system, is always indicated by *lateritious* or pink sediments of the urine, and the deeper the colour the more severe in general are the symptoms. The latter are especially observed to occur in rheumatic, gouty, and hepatic affections. The pathological connexion of gout and gravel has long been noticed, and their mutual dependence on predominant acidity in the system was a favourite speculation with many old authors. This theory has certainly received some degree of support from the inquiries of modern pathologists. That excess of lithic acid, however, which is the consequence of *fever*, can hardly be viewed as a source of the chronic calculous deposits which it is my object now to investigate. I

* This disposition is given to the urine by a very slight excess of *free* acid,—either the phosphoric, sulphuric, or carbonic.

pass on, therefore, to notice those states of the body independent of fever, which lead to such a result.

2. Of these the most commonly witnessed are simple errors in diet, which may be, either the mere excess of wholesome food; or the partaking of food decidedly unwholesome or peculiarly difficult of digestion; or such as uniformly disagrees with a particular stomach; or lastly, the indulgence in food at unusual hours.* This principle in pathology points out the intimate connexion that subsists between gravellish, gouty, and *dyspeptic* complaints, to which almost every thing that is important in the treatment of the disease has a reference. It may perhaps be asked in what *manner* these derangements of the digestive organs come to increase the formation of lithic acid by the kidney. The question is one of very considerable difficulty. It is not exactly known whether the kidney partakes of the diseased action or not. Dr. Prout is disposed to consider that it does not; and that the mere circumstance of imperfectly assimilated matter being brought in the course of circulation to the kidney, is sufficient to cause the formation of a more than ordinary quantity of lithic acid.

3. Irregularity in exercise, great fatigue, depressing passions of the mind, inordinate mental exertions, all tend in like manner to produce turbid urine from excess of lithic acid. From these remarks it will appear that the tendency to lithic deposition may often be *acquired* (like gout) by indolent habits and excess in eating and drinking. But there is still another view of the subject which requires to be taken, before it can be appreciated in its several bearings.

4. The disposition in the urine to superabundant lithic

* [The use of animal food also increases the quantity of the lithic acid: whereas a vegetable diet diminishes it.]

acid is sometimes *natural*, and not unfrequently *inherited*. Under such circumstances it is usual to see it deposited in the shape of *crystalline grains*, and there is every reason to believe that these are in most instances formed in the kidney. Such a morbid state of the urine often continues for a great length of time, without occasioning any symptoms of peculiar severity; but sooner or later the constant deposition of crystals of lithic acid in large quantity ends in the formation of a calculus. It is a singular circumstance, that in certain countries and districts of countries, the disposition to lithic deposits from the urine is particularly strong, and calculus therefore is considered as *endemic* in such situations. A remarkable instance of the kind occurs in an extensive tract of this country, of which Norwich may be taken as the centre, in which more calculous cases occur than in the whole of Ireland or Scotland. The water, diet, temperature, and peculiar habits of the district, have each, in their turn, been accused as the exciting cause, but the circumstance is still unexplained.*

2. Very little is known regarding that state of body in which depositions of oxalic acid take place. It appears, that in this diathesis there is little or no sand voided, and the urine is generally clear. The calculi which contain it are probably formed in the first instance in the kidney, though afterwards increasing to a considerable size in the bladder. Dr. Prout has shown† from the examination of *alternating* calculi, that the deposition of oxalic acid is both preceded and followed by that of lithic acid; from which it may be inferred that they are of the same general nature.‡

* See Dr. Prout's Inquiry, page 139; and Dr. Marcet's Essay, page 28.

† Prout's Inquiry, pages 106 and 159.

‡ [It is on the succession and convertibility of these acids that the treatment of this variety is founded. Dr. Prout recommends such means as will change the oxalic to the lithic acid.]

The oxalic acid is formed in the kidney instead of the lithic, where combining with the lime naturally existing in the urine, it lays the foundation of those rough, hard, and very troublesome concretions, to which the term *mulberry calculi* is usually appropriated. It is a curious circumstance, that in the district of which Bristol may be considered as the centre, this species of urinary calculus is more frequent than any other; at any rate, that it much exceeds its usual relative proportions, as observed in other parts of the kingdom.*

3. The *secondary* deposits from the urine are commonly *amorphous*, but occasionally also they appear *crystallized*. The former consist chiefly of the phosphate of lime, but with this is generally to be found some portion of the triple phosphate of magnesia and ammonia. The latter consist *invariably* of the triple phosphate.

It has long been observed, that a deposition of the earthy phosphates is attended with a very peculiar set of constitutional symptoms, differing both in *kind* and *degree* from those which accompany the lithic diathesis. They may be characterised as indicating great derangement of the chylopoietic viscera, with general irritability and debility of the system. Among the most prominent of these symptoms may be noticed nausea, flatulence, cos-

* I omit the consideration of that deposit which Dr. Wollaston denominated cystic oxyd, on account of its great rarity and the little that is known concerning it.

[The mulberry or oxalate of lime calculus is rarely met with, in old people, but it occurs in all ages below fifty. It appears in gouty and herpetic subjects; also in persons of good health with long intervals between the attacks.

Pain in the region of the kidney, the urine acid, and of a pale citrine colour, without sediment, the stomach deranged, the subject gouty, or herpetic, shews that the case is most probably one of the oxalate of lime diathesis. The signs, however, are obscure.]

tiveness alternating with diarrhœa, the stools having an extremely unhealthy appearance (black, clay coloured, or yeasty ;) a sense of uneasiness and weakness in the back and loins, a sallow haggard countenance, languor and depression of spirits, coldness of the extremities. The urine in this state of disease is pale-coloured, and more copious than natural. After standing for a short time it becomes opaque, and deposits a copious precipitate of the mixed phosphates in the state of an impalpable powder. It is extremely prone to decomposition, becomes speedily alkaline by the evolution of ammonia, and emits a very nauseous smell. The following appear to be the most important of the pathological principles connected with *phosphatic* depositions.

1. They are very seldom, if ever, formed in the kidney ; nor do they often take place in the bladder without a previous deposite of lithic acid. It has been satisfactorily proved, that very few phosphatic, or white calculi, are to be met with which have not a lithic or oxalic nucleus. Hence it is, that to this species of urinary deposite we apply the term *secondary*. It is not contended, however, by any means, that a *natural* or primary disposition to deposite the phosphates is not *occasionally* observed.

2. The deposition of the phosphates is connected with debility of the whole frame, the result of long-continued dyspepsia, diarrhœa, excessive fatigue, or protracted mental anxiety. It is frequently present at an advanced period of life, and is one of the strongest proofs of the *breaking-up* of the constitution. Whatever may have been the previous nature of the calculus, the phosphatic diathesis always prevails when the patient's general health gives way.

3. Phosphatic depositions are sometimes the result of a long course of alkaline medicines. Mr. Brande has de-

tailed some experiments,* which he considers highly important as showing the danger of administering alkaline remedies where there is a tendency to the production of the phosphates. Dr. Prout also acknowledges their mischievous effects, in common with all medicines which act as diuretics.

4. A disposition to throw down the phosphates is given, not only by these *general* causes, but by many which act *locally* on the urinary organs, more particularly injuries of the back, and irritations about the bladder, kidney, or urethra, when operating without intermission, and for a considerable length of time; as the retention of a catheter, strictures, &c. That injuries of the back produce *alkaline* urine, is a very old observation, but it was not known until lately that this was merely a symptom of that phosphatic *diathesis* which such a cause induces. Hence too it is, that the presence of a small uric calculus in the bladder comes at length to produce a decided deposition of the phosphates.

5. It is very seldom observed that phosphatic calculi are encrusted by layers of *lithic* acid; and it is argued, therefore, that the phosphatic diathesis is rarely succeeded by any other. Upon this subject, however, the great authorities are not in strict accordance. Mr. Brande asserts, that such a consequence may sometimes be observed, more particularly after a free use of acid medicines given incautiously while the phosphates are in excess. Dr. Prout, on the other hand, maintains confidently, that a decided deposition of the mixed phosphates (particularly in advanced life) is never followed by other depositions, and that the few exceptions to this law which have been observed are more apparent than real.

6. The question has frequently been discussed how far

* Philosophical Transactions, 1810, p. 143, et seq.

depositions from the urine are ever of a *mixed* character. Pathologists are not agreed on this point. Mr. Brande informs us (on the authority of chemical analysis,) that cases of mixed sabulous deposit are by no means unfrequent; while Dr. Prout, from an attentive examination of what have been called *compound* calculi, believes that such mixtures are very rare. He states,* that he has never seen an instance of the pure lithic acid intimately *mixed* with the phosphates, nor does he believe that such a compound ever existed in nature.

I have now to add a few words respecting the period of life at which calculous complaints occur, and the prognosis which may be formed under the different circumstances in which they prevail. Every one must have observed how liable the urine is at an early age to every species of deposit. This particularly happens in children of delicate constitution and weak stomach. In most cases the deposit is white and consists of the phosphates, but in the very beginning of the complaint it is often lithic. The irritability of habit, however, at this age is so great, that the character of the sand frequently changes with rapidity. From tables which have been drawn up, it appears that nearly *one half* of the whole number of stone cases occurring in this country take place prior to the age of puberty. Of the remainder, a large proportion have their origin in early life; but the constitution being then sound, the general health good, and the calculus small, no symptoms are produced. The next period of life most prone to calculus occurs about the age of forty, when gout begins to make its inroads on the constitution. A calculus previously existing in the bladder will rapidly increase at this period, or a nucleus will now be formed for that of advanced life.

* Inquiry, p. 113.

The phosphatic diathesis occurs most frequently in childhood and old age. Where its exciting causes, however, are strong, it may occur *as an original disease*, even in the prime of life. When the deposition of the phosphates is merely occasional, it is hardly an object of attention; but if it invariably follows meals, still more if it occurs as *white sand*, subsiding *immediately* to the bottom of the vessel into which the urine is voided, it becomes a serious disorder. When *thoroughly* established in the system it is very difficultly got rid of; and to this circumstance we may trace the large size which white calculi have sometimes attained, rendering their removal from the body, in neglected cases, hazardous, or even impossible.*

The infinitely greater frequency of calculus diseases in the male than the female sex, as well before as after puberty, has been clearly established. It may be ascribed in part to the shortness of the female urethra; but some other circumstances probably concur, which have hitherto eluded the researches of pathologists.

It has frequently been supposed, that an accurate acquaintance with the chemistry of urinary deposits would lead to clear and definite views of treatment; but this notion is founded upon very imperfect observation. The chemical treatment of lithiasis indeed, though much talked of, is, comparatively speaking, of but little service. The practitioner who aims at general success, must be guided by pathological considerations of a higher character. He must look to the state of the whole system, and to that of the chylopoietic viscera in particular. He must

* In the Philosophical Transactions for 1809 (p. 303,) is an account, by Sir James Earle, of a phosphatic calculus, sixteen inches in length, and weighing *forty-four ounces*. Lithotomy was performed, but the stone could not be brought away, and the patient died ten days afterwards.

bear in mind, that while the urine is in its natural state, no deposition from it will take place; or if such has already occurred, that the calculus will not increase in size. His object, therefore, must be to keep the urine, as well as other secretions, in a healthy condition, and this is to be done, not simply by an acid, or an alkali, but by strict attention to all that can improve health, or ward off disease. The deranged operation of the urinary organs must certainly be broken in upon, in the first instance, by *medicine*; but the effect is to be kept up by *diet* and *regimen*.

1. Where the lithic diathesis prevails, laxatives and alteratives are to be employed so as to promote a due action of the digestive organs; and after them, or occasionally along with them, may be exhibited with advantage some form of alkaline medicine. Five grains of Plummer's pill, or the following—

R. Extract. colocynth. compos. gr. ii.
 Pill. hydrargyr. gr. iii.
 Ft. pill. hor somn. cap.

or in robust habits this more powerful combination—

R. Calom. gr. iii.
 Pulv. ant. gr. iv.
 Ext. coloc. comp. gr. iii.
 Ext. hyoscyam. gr. ii.
 M. f. pill. ii.

may be given at night, followed the next morning by a Seidlitz powder, or this alkaline aperient—

R. Infus. gent. comp. aq. cinnam. a ʒss.
 Sod. carbon. gr. xv.
 Sod. tartar. ʒii.
 M. f. haust.

This plan may be pursued every night, or every other night, according to the urgency of the symptoms. Once

or twice during the day a tea-spoonful of magnesia may be taken in a glass of soda-water, or the liquor potassæ in the dose of twenty drops.* This last medicine is best given in barley-water, and liquorice assists in covering its nauseous flavour.† All alkaline medicines, whether in a pure or carbonated state, are apt, when long persisted in, to disagree with the stomach. They should therefore be frequently varied.‡

* [The aqua mephitica alkalina has long been celebrated : it may be taken in the quantity of ζ iv. before meals, with a little laudanum or brandy if it disagrees with the stomach. All acids must be avoided : the food should also be digestible. Thirty grains of salt of tartar, and two tea spoonsful of lemon juice, is a good mode of taking the alkali. The potassa aerata, made by dissolving half a lb. of the subcarbonate of potass in 10 oz. of water, adding 2 oz. of subcarbonate of ammonia, and as soon as it has effervesced, it is crystallized, and the patient takes ζ ii. of it, dissolved in a pint of distilled water, twice a day ; four scruples of the super carbonate of soda to a pint of distilled water, with a little lemon acid added, form also a pleasant drink, which can be taken longer, and in greater quantities, than in any other form. The magnesia is at present most celebrated for obviating the symptoms.]

† [Lime-water is also useful ; it may be given with equal parts of sweet milk, (a pint of each daily.) The potash may be given in the form of soap, or of the carbonate of potass, dissolved in distilled water, in the proportion of a quarter of an oz. to the lb.ss. of distilled water, two or three times a day ; or the same quantity of the carbonate of soda, with the same portion of water, as often repeated. If a small calculus exists in the bladder or kidney, these medicines prevent its increase, by lessening the quantity of lithic acid in the urine : after a time it is generally voided by the urethra.]

‡ [Hard waters, or those impregnated with carbonated lime, are to be avoided. Warm sea bathing is sometimes, though not always, useful. If there be much irritation, hyoscyamus and opium must be had recourse to. This plan is particularly adapted to eradicate the disease in early life, and it should be continued at intervals until the patient is of age. At forty there is often a great quantity of lithic acid secreted, which protects, by its vicarious operation, the system from other diseases. In some instances, active diuretic medicines have had a great effect in promoting the secretion of great quantities of lithic acid ; Dr. Henry speaks of

Much has been written concerning the mode in which alkalies operate in the relief of calculous disorders. The notion of a *solvent* power so long and so confidently maintained, is now laid aside by the best pathologists, and their use (which none can dispute) is ascribed to their action on the digestive organs; where, either by obviating the formation of acid, or by neutralizing it when formed, they prevent its secretion in the kidney. Dr. Prout considers alkaline remedies as *palliatives* only, allaying irritation, and in the case of magnesia, promoting a laxative operation.* He further gives it as his opinion, that *general* remedies (especially purgatives, judiciously administered, and never carried to excess) are those upon which reliance is chiefly to be placed.

The remarkable exemption from calculous complaints enjoyed in hot climates, has been frequently mentioned as a hint in practice. It has been attributed to the uniform moist state of the skin, and certainly points out the

turpentine and laudanum as producing this effect. Dr. Prout recommends a combination of muriatic acid and opium, or turpentine mixed with both the last, when the lithic acid is disposed to concrete: when it is not, the muriatic acid may be omitted, and potash may be substituted. A change of water also produces the same effect. These remedies, however, must be administered with great caution. When there is a tendency to inflammation of the kidney, or when a renal calculus is too large to pass down the ureter, the above remedies, Mr. Prout thinks, will be likely to increase the affection. It is only to crystallized lithic acid deposits, when they occur in middle aged subjects, that this plan is properly adapted: in the young and the old they will not answer. They are only palliative; and as soon as they have alleviated the fit, they are to be no longer employed, but means of prevention must be had recourse to; particularly those drawn from a proper attention to diet above noticed.† In old people, the disease is particularly dangerous, as leading to calculus; or if the secretion be repressed, to general disease.‡]

* Medico-Chirurgical Transactions, vol. viii. p. 549.

† Prout on Calculus.

‡ Ibid.

propriety of attention to exercise and warm clothing, and perhaps the occasional use of a warm bath.

‘The oxalate of lime, or mulberry calculous disposition, is treated on the same principles as that of the lithic acid. The administration of the muriatic, and Dr. Prout suspects also of the vegetable acids, converts an oxalic into a lithic deposit, and it is then treated as above.’

2. The treatment of those calculous cases where a *phosphatic* diathesis prevails, must vary with the duration of the disease, and the consequent degree to which the general health has suffered. They will often be found to yield to the same remedies as have been already recommended; proving that the two great forms of urinary deposition are much more intimately connected than is commonly imagined. In children, and adults where the general health is little impaired, the occasional use of rhubarb and calomel in moderate doses will prove highly serviceable. In the majority of cases benefit will be derived from *tonic* medicines; and the peculiar advantage of *acids* are equally suggested by chemical and pathological considerations. The mineral acids (sulphuric and muriatic) have been most usually employed; and where they agree with the stomach, often give a decided check to the symptoms in a few days; ‘if they disagree, the citric must be used.’ Uva ursi, ‘in the form of extract, an infusion of the alchemilla arvensis,’ bark, ‘iron,’ and other astringent vegetables, may be had recourse to with the best effects in protracted cases, where the tone of the stomach is weakened, and the constitution much reduced.* Saline purgatives, active diuretics, and alkaline remedies, must be carefully avoided, both with reference to the ge-

* [The convolvulus panduratus has been praised as a remedy in gravel.† It operates as a mild cathartic, and deserves to be noticed as an American medicine.]

† W P C. Barton’s Veg. Mat. Med. vol. i. p. 252.

neral and urinary system. 'Mercury also, pushed to salivation, is hurtful; calomel, taken as a purge, has produced a dangerous diarrhœa.' Above all, during the presence of a phosphatic diathesis the *mind* is to be set at rest. Absence from care, change of scene, the sports of the country, and regular hours, have an influence upon the disease quite astonishing, and often prove effectual where medicines have failed. 'Distilled or soft water is the only proper drink. Hard waters are to be most sedulously avoided.'

In every variety of calculous deposition strict attention is of course to be paid to diet; but we can hardly concur with those modern pathologists who have attempted to regulate this also by chemical principles. The excrement of animals feeding solely upon animal matter, contains uric acid in considerable quantity. It has been argued therefore that vegetable food should be preferred where the lithic, and animal where the phosphatic disposition exists. The fact is curious, but the practical inference incorrect. That diet is in every instance to be preferred which agrees best with the stomach. 'Rhenish wine, cider, and perry, if they agree, will be proper; all watery diet, as soups, should be taken moderately.'

In the treatment of calculous cases, it is necessary to look to the degree of *irritation* prevailing in the system generally, and in the kidney particularly. 'In a fit of the gravel,' opium, hyoscyamus, and other sedatives, 'as V. S. calomel and antimonial powder, the warm bath, leeches to the loins, low diet,' are often *indispensable*, and in *most* cases they will be found useful auxiliaries. Where there is much pain in the loins, a galbanum or opium plaster may be recommended. If manifest injury has happened to the back, an issue or seton should be had recourse to.*

* [When there is a calculus in the bladder, the injection of three or

It is hardly necessary to remark, that these observations on the treatment of lithiasis are intended to apply to those cases which are strictly *constitutional*, where no actual calculus has formed, and where no disorganization of the urinary organs has taken place. The treatment of such only is in the hands of the physician; but it will be obvious that the same general principles must apply in every variety and stage of the disease. This may be illustrated by showing how the doctrines now delivered become subservient to the determination of questions connected even with the operation of lithotomy. It is to be recommended, for instance, without delay, whenever a calculus, no matter of what species, is ascertained to exist in the bladder *before puberty*;^{*} and in afterlife, when the phosphatic diathesis is *fully* formed. On the other hand, it may be postponed when the calculus is small, and the lithic disposition steadily present,—provided the patient be in the prime of life, his *general* health sound, and he himself willing to conform to regular living. Under all other circumstances, the retention of a calculus in the bladder is to be dreaded, not only on account of present suffering, but the probability of its future increase.

four ounces of fluid will immediately relieve the pain, by removing it from the sensible spot on the surface of that viscus. The injection of alkalies, as recommended by many writers, has no effect; as the texture of the stone is too hard for solution by any menstruum that can be injected into the bladder.]

* Children upon whom lithotomy has been performed, are not found to be more liable than others to calculous complaints, at an advanced period of life.

CHAP. II.

DISEASES OF THE KIDNEY.

Nephralgia—Symptoms and Mode of Treatment—Nephritis—Abscess of the Kidney—Hæmaturia—Ischuria renalis—Its Causes—Prognosis—Method of Treatment.

THE presence of a calculus in the kidney is not necessarily followed by distressing symptoms. Instances are recorded where a calculus of considerable size, nay even a large collection of calculi, have been found, after death, distending the kidney, without any one symptom having occurred which could lead to an idea of disease in the urinary organs. In most cases, however, when a calculus becomes *impacted* in the kidney, suppuration and gradual wasting of that organ takes place. This is generally accompanied by an *obtuse* pain, or sense of weight in the lumbar region, aggravated by exercise, especially by riding on horseback. There is also retraction of the testicles, and a sense of numbness extending down the inside of the thigh on the affected side. The urine is commonly of a deep red colour, depositing either sand or sediment. It is voided frequently, and in small quantity at a time. A person may exist for a great number of years with this affection, without materially suffering in

his *general* health; but in most instances it brings on bloody urine, and ultimately proves fatal.

The *retention* of a calculus in the kidney is, after all, a rare occurrence. Far more commonly, while yet of moderate size, it quits the pelvis of the kidney, and descends into the bladder. There can be no doubt but this has *sometimes* taken place without pain or uneasiness, even where the stone was of considerable size. In the majority of cases, however, the descent of the calculus along the ureter is accompanied by very well marked symptoms, constituting nephralgia, or in common language, *a fit of the gravel*. There is a *sudden* attack of very acute pain in the region of the kidney, with violent sickness and vomiting. The pain extends to the groin, and is generally attended by *numbness* of the thigh, and retraction or pain of the testicle. The urine is discharged in small quantity, high-coloured, and often mixed with blood, or with mucus tinged with blood. Dr. Pemberton has noticed, as occasionally accompanying this state of disease, a sympathetic pain on the skin of the abdomen midway between the os ilium and navel, increased by pressure, and in some cases so acute as to arrest the whole attention of the patient.

The distressing symptoms now enumerated are of very variable duration. They usually terminate as suddenly as they began, marking the moment at which the calculus escapes from the ureter into the bladder. There it remains for a longer or shorter time, when it either enters the urethra, and is ultimately discharged from the body, or begins to occasion some of the symptoms of *stone in the bladder*.* In a few unfortunate cases the calculus

* [The symptoms of stone in the bladder are a frequent desire to make water, which comes away in a small interrupted stream, and is followed towards the conclusion with pain in the glans penis. Sudden

becomes permanently retained in the contracted portion of the ureter, producing that train of symptoms which usually attends disease of the urinary system, and terminating in disorganization of the kidney, and eventually the death of the patient.

A fit of the gravel has been mistaken for lumbago. It is to be distinguished by the nausea which attends it, by the changes observable in the secretion of the kidney, the affection of the testicle, and the pain continuing unaltered by any variations in the posture of the body. Attention to the same symptoms will serve to distinguish nephralgia from a fit of the colic, with which also it is liable to be confounded.

In the treatment of nephralgia the principles laid down in the last chapter for the relief of the lithic diathesis may be applied; recollecting, that here high irritation and feverish action are superadded to great excess in the formation of uric acid. An active purgative is often of essential service. When the pain is very acute, blood may be taken from the loins by cupping, or even from the arm. The patient should be placed in a warm bath, and a full dose of opium given every second or third hour, according to the urgency of the symptoms. Starch glysters, with laudanum, contribute materially to the patient's relief.

jolting in a carriage, stepping from a height, as, from a chair, produces great pain; bloody or suppressed urine; itching of the glans penis, of the anus, pain in the neck of the bladder, numbness of the thigh, nausea, tenesmus, and retraction of one of the testicles, also attend it. It is distinguished from diseased prostate by the pain occurring in stone after making water; in diseased prostate before.

In calculus of the bladder, lithotomy, when it has grown to any size, is the only remedy: when small it has been extracted by a crooked forceps introduced into the bladder; and in the female, by dilating the urethra by means of tents or bougies. When it is impossible to extract it, then the alleviation of the symptoms by lithontriptics become necessary.]

Stimulating diuretics are to be carefully avoided. ‘A bag of snow or pounded ice, applied over the seat of the pain, has had an instantaneous effect in relieving the pain.* Pouring cold spring water from the spout of a teapot, will have the same effect.’

Nephritis, or inflammation of the kidney, may have its seat either in the substance of that organ, or in its capsule and surrounding cellular membrane. The former occurs only as a consequence of calculi retained in the kidney, and wherever met with has, I believe, always a *chronic* character. The latter has been observed, in a few instances, as an *acute* idiopathic affection, arising from exposure to cold, ‘diuretics, as turpentine, &c.’ or severe horse exercise.† The symptoms in no respect differ from those of nephralgia, except that the pulse is here frequent and hard, and the tongue loaded, with other marks of inflammatory fever; ‘as, thirst, anxiety, restlessness, colicky pains, nausea, and vomiting; the urine is at first of a deep red, then limpid and colourless: sometimes it is wholly suppressed.’ The treatment of inflamed kidney must be conducted upon the usual principles. General and local blood-letting, mild purgatives, frequent emollient glysters, demulcent drinks, and the warm bath, are our principal resources. Blisters should of course be avoided. Opiates may be administered where we have reason to suspect the presence of a calculus.

Inflammation of the kidney may subside without any serious consequences; but in most instances where it does unfortunately occur, it terminates in *abscess*, a lamentable and not uncommon state of disease. Dr. Baillie observes,‡ that no considerable gland of the body is so

* Dr. Darwin.

† See particularly a case by Dr. Turner in the College Transactions, vol. iv. p. 226.

‡ Morbid Anatomy, page 288.

liable to form abscesses as the kidney. In some cases which he has seen, they appeared to be of a common kind, but the greater number partook of the nature of scrofula. He considers it probable, that calculi in the kidney are the immediate cause of the inflammation, which, however, receives its character from the constitution of the patient. The existence of abscess of the kidney may be known by the voiding of pus with the urine, subsequent to, or accompanied by, the usual symptoms of diseased kidney.*

A predisposition to ulcerated kidney, and generally to

* [The following account of this disease, by Dr. Baillie himself, will not be uninteresting :—When inflammation of the kidney has not been removed by the usual means, an abscess takes place in it. The pus which is formed is sometimes of a common kind, but is often of a strumous nature. It comes away along with the urine, in greater or less quantity; and this circumstance, together with the history of the case, ascertains in the most satisfactory manner, the nature of the disease. The kidney, in such cases, is sometimes nearly of its natural size, but is often much enlarged; and this circumstance can be ascertained by an examination in the living body. Patients will continue to live with this complaint for many months, and even for several years. The formation of matter will sometimes be suspended for several months, and patients will recover, in a considerable degree, their general health. The disease will return either from imprudence in diet or exercise, or without any known cause, and the patient will become as ill as ever. It very rarely happens that a patient permanently recovers from this disease, and I do not at present recollect an instance of it. Medicines, as far as my experience has reached, do not produce any great or permanent good effect. A seton inserted in the loins, or in the flank of that side where the diseased kidney is situated, is sometimes of considerable use. The *uva ursi*, and the *tinctura benzoës composita*, have sometimes been serviceable as internal medicines. The same observations may extend to cooling and mucilaginous remedies. Great quiet of body, and uniform temperate living, are useful in mitigating symptoms, and retarding the progress of the disease. A patient labouring under this complaint, should live almost entirely upon vegetable food, and should abstain from wine and other fermented liquors.]

disease of the urinary system, is given by the decline of life. A very large proportion of old people suffer under some morbid affection of these organs. In one it takes the form of calculus, in another of diseased prostate, in a third of irritable bladder, in a fourth of chronic inflammation and abscess of the kidney.

The researches of pathologists, and particularly of Dr. Cheston,* have proved the dependence, in many cases, of ulceration of the kidney upon the presence of a stone in the bladder. Dr. Cheston adds, that the sympathy is mutual, and that abscess in the kidney leads, in its turn, to diseased and irritable bladder.

The complete destruction of one kidney is not necessarily fatal. Where the constitution is sound, the other kidney has sometimes enlarged so as to do the office of both, and life has been preserved, and even rendered comfortable, under such circumstances. Occasionally a true *scirrhus* enlargement of the kidney takes place; and though instances are not wanting of such a disease remaining unsuspected during life,† yet, in most cases, it is attended with the voiding of bloody urine, a constant pain in the loins aggravated by the slightest motion, and a lingering death.

HÆMATURIA, or hæmorrhage from the urethra, sometimes occurs along with hæmatemesis, and other marks of a general hæmorrhagic tendency. But in the majority of cases it is symptomatic of local disease in some part of the urinary system. I have seen it concur with fever, pain about the region of the bladder, constant desire of micturition, and other unequivocal evidences of inflammation of the bladder.‡ It is seldom, however, of suffi-

* Cheston's "Pathological Enquiries," chap. ii.

† See Medical Observations and Inquiries, vol. vi. p. 236.

‡ [Sometimes hæmaturia consists in a periodical discharge of blood from the kidneys, resembling that from the piles. Loss of appetite

cient violence to prove hurtful by the mere quantity of blood lost. The prognosis, therefore, and treatment of

generally precedes the attack ; and persons of a pale, lymphatic, and indolent habit, are most subject to it. Soon after the attack, they recover their activity and disposition to motion. Aretæus observes, that if no effusion of blood takes place, the head and eyes become affected with pain, vertigo, &c.* Morgagni and Chopart describe a varicose affection of the neck of the bladder as producing this disease.† Cases are also recorded, in which bloody urine has been discharged for some time, without any bad effect ; its suppression has, however, sometimes produced death. It sometimes is produced by a repression of hemorrhoids, of the gout, of menstruation, or of an affection of the skin. A person in Holland made bloody urine at intervals for five years, in consequence of suppressed piles.‡ Reiselius has recorded observations to the same effect. The hemorrhoidal flux also succeeds hematuria and cures it. Sometimes, also, hematuria supplies the place of menstruation during the first months of pregnancy. It is sometimes critical, and puts a happy end to fevers and to epilepsy. In general, it is thought by Chopart, when the discharge of blood by the urine is periodical and regular, and succeeds a suppression of the menses, it is salutary.§ When, however, hematuria appears in the last stage of small pox, typhus, or scurvy, it is dangerous ; in scarlet fever and measles, it is also so. Spirits of turpentine, taken internally, also produces it : two ounces taken at a dose caused it in a Swiss ; diluent drinks restored him to health. Aloes infused in beer, taken internally, has also produced it.|| Blows and falls on the back, riding on a hard trotting horse, or in a carriage over a rough road, do so likewise.

When the blood is discharged without pain, it comes most probably from the kidneys, which possess little sensibility. However, the lining membrane of the bladder is often diseased without betraying any symptoms of pain : but when there is pain in the region of the pubis, and a discharge of urine and blood, they may be regarded as certain signs of disease of the bladder. When hematuria is attended with acute inflammation, the pulse is small and frequent, and the respiration difficult ; nausea, cold sweats, and great pain in the bladder, also attend. Pains in the buttocks, back, and thighs, accompanying a discharge of

* Dict. des Sciences Medicales, art. Hematuria.

† Ibid.

‡ Hercules de Saxonia Dict. des Sciences Medicales, art. Hematur.

§ Dict. des Sciences Med.

|| Hercules de Saxonia Dict. des Sciences Medicales, art. Hematur

this hæmorrhage, merge in those of the primary affection, and hardly merit a more specific notice.

blood, have often induced the belief in the existence of disease of the bladder, when the discharge came only from the penis or ureters.* When it comes from the ureters, no desire to urinate precedes it, and it comes pure without any mixture of urine; when from the bladder, it is pressed into the form of a goose quill, produced by the stagnation of the blood in that viscus, and the contraction of it on the mass; which presses it into the form of the urethra.† Sometimes a clot blocks up the urethra, and none is evacuated. The urine is often coloured red by eating the Indian fig: Desault states, that eating beets at night has produced the same effect.‡

It sometimes proceeds from the rupture of vessels on the surface of the lining membrane of the passages for the discharge of urine. It has been supposed also to be the result of secretion. No morbid traces are found sometimes; at others, the vessels of the bladder are varicose.§ If the patient is old, the urine mixed with pus, or attended with violent pain, the case is dangerous. The nature of the affection should be accurately studied; whether it be idiopathic, or the result of another disease, or critical, which it rarely is. It is sometimes fatal in a very short time.||

A weak or plethoric constitution; sedentary habits; or great muscular exertion; powerful affections of the mind, and old age; venereal, bachanalian, and other excesses, also are its causes. Those who have the piles, and suppression of the menses, are subject to this disease. It also occurs in women at the change of life.

The retrocession of the rheumatism, of the gout, the itch, menstruation, of purulent discharges from issues, ulcers, produce it. It has proceeded from the application of blisters, aloetic purgatives, and blows on the pubis.¶

When the blood comes from the kidney, it is equally diffused throughout the urine.** If it depend on plethora, or sudden exertion, riding, jumping, &c., the blood is unmixed, and flows in considerable quantity; appears suddenly, and returns at intervals, without pain in the back.†† If it depend upon improper medicines, it appears when they are used, and ceases on their suspension. This disease is often unattended with

* Hercules de Saxonia Dict. des Sciences Medicales, art. Hematur.

† Ibid.

‡ Ibid.

§ Ibid.

¶ Ibid.

¶ Dict des Sciences Medicales

** Ibid.

†† Ibid.

pain; its attacks singularly vary; they are longer when the bleeding is passive, the countenance becoming excessively pale when the discharge continues a long time. The presence of blood in the urine is always determined by the coagulum which forms at the bottom of the pot, and which cannot be dissolved by heat; and also from the colour of the urine. If the clot is absent, however, it is more difficult to distinguish it from the concentrated solution of urea. Bloody urine stains linen dipped in it red; coagulates at the temperature of boiling water, and has a muddy appearance.*

When the blood comes from the bladder, a frequent desire to make water, tenesmus, heat about the anus, pungent pain in the perineum and glans penis, also accompany it; constipation, itching about and behind the pubis, bearing down increased by cough, motion and sneezing;† nausea, vomiting, cold sweats, small and frequent pulse, great difficulty in making water, are evidences of its greatest‡ degree.§

When hematuria is attended with fever, with a full, hard, and strong pulse, bleeding becomes necessary, both generally and locally. When the disease succeeds periodically to the suppression of another malady, and the habit is full, the same treatment is necessary previous to its re-appearance. The mind must also be kept perfectly easy and free. Sedentary habits should be avoided, as also excessive and sudden exertions of strength, and venereal indulgences.|| A case is recorded in which a decoction of dry peach leaves (an oz. to the quart boiled to a pint and a half,) given in the quantity of a pint a day, effectually relieved the patient when all other means had failed.¶ In ordinary cases, when the system appears neither excited nor depressed, the use of spirits of turpentine, Canada balsam, and other medicines of that class, has been valuable: the tinctura ferri muriatis is also praised. Diluent drinks, such as whey, chicken water, lintseed tea with nitre in it; rest in a horizontal posture, should also be ordered. When the disease is suspended, rest, a mild farinaceous regimen, avoiding acids and heating articles, hot drinks, as tea and coffee; also spirituous and fermented liquors; horse and carriage exercise must all be prohibited; prolonged speaking has also been hurtful. Whey will be useful as a common drink, particularly where the system is irritable. The resinous medicines, as turpentine, Canada balsam, balsam of tolu, are given with most propriety to aged persons,

* This note is taken from the Philad. edition of Prout on the Urinary Organs.

† Dictionary des Sciences Medicales.

‡ This note is taken from the Philad. edition of Prout on Urinary Diseases.

§ Dict. des Sciences Medicales.

|| Ibid.

¶ Medical Facts and Observations, vol. viii.

and where the patient is debilitated and the discharge chronic and passive. Bark, nourishing diet, and laxatives, are proper.*

If it succeed suppression of the menses, or of the piles, leeches to the vulva or anus, vapour of warm water directed against these parts; barley water, whey with nitre in it, as a drink; semicupia, mild glysters, and laxatives. Diluent drinks are particularly valuable when cantharides have irritated the urinary passages, and they should be taken in enormous quantities. When it proceeds from riding or any sudden exertion, general bleeding will be preferable to leeches; and it is evident, if fainting could be produced that coagulation of blood in the mouth of the vessel would be salutary.† If the bleeding be excessive, acidulated drinks and sinapisms are proper, according to the case.

In cases of passive hemorrhagy, the simarouba, cinchona, acidulated with the mineral acids, are also useful; likewise, chalybeate and purgative mineral waters. When life is threatened in cases of passive hemorrhagy, sulphuric ether may be administered internally, and ice applied to the region of the bladder, the inside of the thighs, and iced water given in injection, sinapisms being applied to the ankles at the same time.‡ If pain exist in considerable degree, opium may be given and often repeated. The bladder must be evacuated by the catheter; and if the clots are too large, warm water must be injected, or according to the advice of Desault, alkaline water.§ If however, the hematuria is necessary for the preservation of the health, it is improper to attempt its suppression. By the use of exciting remedies, an erysipelas has been produced, which endangered life. When it is a critical termination of a fever, nothing should be done, which would put a stop to it. When it occurs in the last stage of scurvy, small pox, or measles, in which it is a mortal sign, the case is different: attempts should be made to support the sinking system, though they are generally|| unavailing.¶

* Dictionary des Sciences Medicales.

† Ibid.

‡ Ibid.

§ Ibid.

|| Ibid.

¶ This note is taken from the Philad. edition of Prout on Urinary Diseases.

If the importance of any disease could be estimated by the survey of a system of nosology, ISCHURIA would stand foremost among the disorders of the human race. Subdivisions of this disease have been made with tedious minuteness, but they are altogether useless in practice. The only species with which the physician is concerned, is the *ischuria renalis*; a few observations on the history of which, will conclude what I have to offer on the chronic diseases of the urinary system.

Ischuria renalis is a very rare form of disease, in which the functions of the kidneys are suspended, and the urine is retained in the blood. The accompanying symptoms are, a dull pain, or sense of weight in the iliac regions, with great anxiety; nausea, vomiting, hiccup, cramps, general irritability and restlessness, or sometimes delirium, lethargy, and coma. It is occasionally attended with a constant desire to void the urine, though the catheter proves that none is in the bladder. The taste of the urine has been discerned in the mouth, and in many instances a remarkably strong urinous smell has been perceptible in the perspiration.

The causes of this affection are various. It seldom occurs except in advanced life. It has been traced to cold in habits of body liable to gravellish complaints. A more common cause of the disease may be found in local irritations in one kidney, operating by sympathy on the other; such as calculi, hydatids, and scirrhus. Lastly, it would appear from the progress of the disease, that it has originated in a variety of cases from some affection of the brain and nervous system. It is an important pathological fact, that this paralytic state of the kidney is almost always succeeded about the second or third day by marks of oppression on the brain.* Dr. Heberden

* See a paper by Sir Henry Hallford on "The Necessity of cautious Prognosis;" *College Transactions*, vol. vi. p. 398.

indeed relates a case where the retention existed seven days, and the patient recovered; but it has been well remarked by Sir H. Halford, that a very small measure of urine is sufficient for the exigencies of the constitution, and that it is the *total* cessation of the secretion which is so uniformly fatal.*

* [Dr. Yeates in the 29th No. of the Medical and Physical Journal of London, gives a number of cases of this disease, which prove that the urine may be discharged from different parts of the body. Muriate of ammonia appeared in one instance on the skin, from its evaporation. The patient died as soon as the secretion stopped. A history of a girl is also related, who had this suppression for three months, during which time, she had hysteric convulsions. Sauvage relates a case, of total suppression of urine and fæces: the skin in both these cases, supplied the defect. In the former, as soon as the secretion from the surface ceased, the patient died. It has also been discharged from the breasts, the ear, the arm-pits, from the fauces, from the umbilicus, into the cavities of the body, as also into the cellular membrane, into the ventricles of the brain, in the stomach, and from the rectum, in consequence of the urinary passage growing up. Valisnieri relates a case of vomiting of urine, which was cured by mercury. Another case is related, in which the disease was kept under, by vomits and purges; it was deposited in this instance, in the cellular membrane. The general, fatal termination of ischuria renalis, is well illustrated by the following case, reported by Sir Henry Halford; a very corpulent robust farmer, of about 55 years of age, was seized with a rigor, which induced him to send for an apothecary. He had not made water, for twenty four hours: but there was no pain, no sense of weight in the loins; no distention in any part of the abdomen, and therefore, no alarm was taken till the following morning, when it was thought proper to ascertain, whether there was any water in the bladder by the introduction of the catheter and none was found. I was then called, and another enquiry was made some few hours afterwards, whether the bladder contained any urine or not: when it clearly appeared that there was none. The patient sat up in bed, and conversed as usual, complaining of some nausea, but of nothing material in his own view; and I remember that his friends expressed their surprise that so much importance should be attached to so little apparent illness. The patient's pulse was somewhat slower than usual, and sometimes he was heavy and oppressed. I ventured to state, that

The treatment of *ischuria renalis*, as recommended by authors, consists in the employment of the warm bath, of stimulating diuretics, and terebinthinate injections. Opium has been advised, on the principle of some spasmodic stricture existing in the vessels of the kidney. 'Tobacco in the dose of 20 drops every hour, of the tincture, has been recommended by Dr. Westburg, of Halmstad in Sweden, with good effect.'* Cupping from the back of the neck, and a brisk purgative, appear more consonant to the suggestions of general pathology.

if we should not succeed in making the kidneys act, the patient would soon become comatose, and would probably die the following night; for this was the course of the malady in every other instance, which I had seen: it happened so, he died 30 hours after this, in a state of stupefaction. Sometimes, however, urine is not secreted for many weeks, and the patient is not impaired either in health or strength.†]

* Med. Recorder, vol. vii. p. 624.

† This note is taken from Prout, Towar & Hogan's edition, Philadelphia, 1826.

CHAP. III.

AMENORRHŒA AND CHLOROSIS.

Remarks on the general Influence of Disturbance in the uterine Functions—Amenorrhœa—Division of the Disease into Retention—and Suppression—Accompanying Symptoms—Plethora and irregular Determinations of Blood.—Chlorosis and Debility—Causes of retained and obstructed Menstruation—Treatment—Agency of Emmenagogues—Of Dysmenorrhœa.

THE high importance of the uterine functions in the animal œconomy cannot be doubted ; and from the earliest ages ingenuity has been taxed to explain them, and to ascertain the extent of their influence both in health and disease. The menstrual flux, the most obvious of the uterine phænomena, has afforded a wide field for pathological discussion ; and being a constant object of attention to females, has thus acquired a consequence which fixes it upon the notice of the medical practitioner. Its overflow or suppression are continually adduced as the causes of disease ; and in different ways it has become interwoven with the opinions entertained of almost every complaint to which the female sex is exposed. Before entering on the consideration of the diseases of

the uterine system, a few remarks, calculated to place this subject in its proper light, may not be without their use.

The functions of the uterus are veiled in almost impenetrable obscurity, and it is hardly possible for us to reason at all concerning them without falling into error. Much caution, at any rate, is necessary, that the natural bias on our minds in regard to the menstrual flux, does not induce us to impute to it an influence in disease greater than it really possesses ; and thus, to withdraw our attention from considerations more general, better ascertained, and therefore more practical. So strongly has the necessity of this caution impressed itself on some late pathologists,* that they have almost been tempted to exclude entirely, from their speculations on the origin of disease, the influence of the uterine system. This view of the subject, however, cannot, as it appears to me, be supported. Every one must admit, that there are certain combinations of symptoms (independent of the menstrual discharge), which occur *only* to women, and not to them except at particular periods of their lives. The strictest pathology would authorize us in attributing such phænomena to what constitutes the peculiar feature of that sex and age,—the uterine system.† Upon the whole,

* See Hamilton on Purgative Medicines, pages 98, 110, and 126.

† [Thus with most women the discharge is preceded at its first appearance by a swelling or enlargement of the breasts, with a sense of fulness at the lower region of the belly, quick pulse, nausea, hot skin, slight, nervous, or hysteric affections, pains in the back or lower extremities, followed after the discharge, by weakness and a dark circle under the eyes.‡ These symptoms unquestionably shew an affection of the system through the medium of the womb.

When it first appears, it is often irregular, in quantity and period. On its disappearance also the same irregularity is observed.]

‡ Text, about the eyes.

therefore, I am inclined to think that the influence of the uterine functions in the production of disease is unquestionable; though fully satisfied, as I shall hereafter point out, that the consideration is of pathological rather than of *practical* importance.

Amenorrhœa is of two kinds; the first where the menses do not begin to flow at the period of life when they usually appear in other women; the second, where, having occurred and continued some time, they are interrupted. Nosologists distinguish these two states of the disease by the terms amenorrhœa emansionis, and suppressionis. In common language they are called *retention* and *suppression* of the menses. In neither a pathological nor practical point of view do these species of the disease differ essentially from each other. Their accompanying symptoms are nearly alike. They arise, as far as we can form a judgment, in a great measure from the same causes, and their treatment is to be conducted on the same principles.

There is considerable diversity in the period at which the menstrual flux first appears, depending partly on the climate, and partly on the habit of the individual.* In

* [The period at which they commence, differs in different climates, being earlier in warm, than in cold climates. In Asia the menses begin about nine years: far north, at 18 or 20. In the temperate latitudes about 13 or 14 years: they generally last three or four days, discharging from five to six ounces during that period. The whole time of the continuance of the menses, in this country, is from 14 to about 45 or 50. Farther north they disappear later: they cease during pregnancy and lactation: if the latter be long continued, however, they return, and the milk gradually disappears, or becomes very bad. The fluid of menstruation has been considered as a secretion since the time of Mr. John Hunter, and much importance has been attributed to this idea, as a discovery of this great man. It is founded on its not coagulating on being discharged. This, however, is of no account, as its slow percolation through the vagina, and its mixture with mucus, renders it

this country, and in healthy constitutions, it commonly shows itself about the age of fourteen; but the delay of some months, or of one or two years, is not to be viewed as a source of uneasiness. Retention of the menses for even a longer period than this, is not always to be considered as a disease. It is compatible with a state of robust health. Notwithstanding this, the anxiety of mothers frequently prompts them, under such cir-

doubtful, whether the want of coagulation does not proceed from these circumstances. The appearance of this secretion, is attended with symptoms resembling fever: the system generally is more irritable, the vascular parts of the body, are more filled with blood: the stomach affected with sickness and retching, and the skin sometimes with urticaria; the bowels are surcharged with wind, and often costive, and sometimes affected with spasms.* In consequence of the susceptibility of the system at this time all excesses should be avoided; as indigestible food, dancing in warm rooms, sudden exposure to cold, strong and sudden agitations of mind.

On the cessation of the menses, the plethoric should live low, bleed occasionally, and keep the bowels regular: if there be pains in the head, breast or belly, local bleedings will be found useful. If the system be generally deranged, with slight affections, indicating a broken down constitution, as great debility, with wandering pains, vertigo, and headache, issues will be of use to the arm or neck.

When the system is delicate, a different plan becomes necessary; the dyspeptic must be treated with medicines appropriate to their condition, diarrhœa must be restrained, and every thing which can promote the strength be prescribed, according to the symptoms; as they vary very much, they must be left to the judgment of the practitioner. It is particularly necessary that the patient should be guarded in her diet, exposure, &c. at this period, as the system is susceptible of many diseases.

Diseases of the liver, scirrhus of the uterus, and of the mammæ, dyspepsia, and chronic ailments of every description, are disposed to fasten on the system at this time.

Some women menstruate more copiously than others: sometimes to so great a degree as to be debilitating; it is then a disease, and must be repressed: it occurs most frequently in the relaxed and debilitated.

* Burns.

circumstances, to solicit the advice of a physician. It is scarcely necessary to say, that these cases are on no account to be interfered with. A practitioner could hardly flatter himself that he understood better than nature the management of the female constitution.

Circumstances, however, are widely different when about the age of seventeen, a young woman who has never menstruated begins to droop in her general health. The symptoms which accompany this state of the uterine functions are very various, but they may be characterized generally as indicating a weak and irritable habit. Those of dyspepsia and hysteria predominate, and the system sinks into that state which nosologists have very aptly designated by the term *chlorosis*. The phænomena, which present themselves in this condition of body, will soon be described. In the mean time I may notice all that appears to be known regarding the causes of *retained* menses. In almost every case which requires medical assistance, this symptom will be found associated with some unequivocal marks of scrofula. It is frequently followed by, or connected with, *consumption*, and it must therefore be viewed in a great measure as depending on the *scrofulous* habit of body.

Suppressed or obstructed menstruation may be either acute or chronic. The acute or accidental obstruction arises from cold, or perhaps some strong mental emotion, is attended with slight feverish symptoms, and is for the most part relieved in a short time by a gentle diaphoretic. Chronic obstruction of the menses, on the other hand, is a complaint of a more serious kind, and is accompanied by two very different trains of symptoms.

In one variety there are marks of plethora, or of irregular distributions of blood. Sometimes the head is affected, and constant excruciating headache, with giddiness on stooping, and paroxysms of epilepsy or mania,

are the urgent symptoms. At other times the stomach principally suffers; and there occur loss of appetite, flatulence, fits of dyspnœa, and a very disturbed state of the alvine evacuations, but without corresponding emaciation. In a third set of cases, the arterial system is that on which the violence of the disease falls, and the leading symptoms are hæmorrhagies from the stomach, nose, or lungs, 'observing the monthly periods,' with a frequent and often full pulse, a flushed face, and a constantly loaded state of the tongue. In very many instances, symptoms are present referable to each of these classes. Perhaps the most common combination of symptoms giving evidence of an obstructed condition of the uterine system, is pain of the left side (about the region of the spleen,) headache, and occasional epistaxis. The pathologist will remark, with surprise, to what an extent the symptoms may go in this state of disease, without any cause for immediate alarm; and how long they will continue without serious injury accruing to the constitution.* He will frequently have occasion too to notice, that the same anomalous train of symptoms occur, not merely with complete obstruction, but with *irregular* states of the menstrual secretion.

In the other variety of chronic obstruction of the

* [Sometimes the retention proceeds from a want of the ovaria, mal-conformation of the uterus, or organs of generation. The prognosis of amenorrhœa is to be taken from the length of time it has continued, the strength of the constitution, and the presence of leucorrhœa; which last always renders restoration improbable. On dissection, disease of the ovaria and uterus has been discovered, as also of the liver, spleen, and mesenteric glands.

If the disease proceed from cold, and has not been of long continuance, the prognosis is favourable, if the constitution be good: if it proceed from any chronic disease of any of the viscera, as of the liver, lungs, from dropsy, from repeated abortion, from excess of venery, the prognosis is unfavourable, and is determined by the state of the disease.]

menses, we may observe all the most unquestionable evidences of a *weakened* state of body. It is to this very remarkable combination of symptoms, seldom, if ever, witnessed, except in young women, and in them, for the most part, under these circumstances of the uterine function, that nosologists have given the name of CHLOROSIS. It has received this appellation from the appearance of the skin, which loses its natural mixture of red and white, and acquires a pale, sallow, or sodden aspect, generally attributed to a diseased secretion of the sebaceous glands, and sometimes, though I believe very unjustly, to diseased liver.

The eyes are *pearly*, and appear sunk in their orbits. A dark circle is particularly apparent beneath them; the lips lose their colour; there is a degree of anasarcaous puffiness over the whole body. The eyelids are swelled in the morning, and the patient complains of a weight in the loins, from œdematous accumulation there. There is great languor and listlessness, and aversion to all kinds of motion or exertion. Pains of the side, loins, and legs, are complained of. The least exercise occasions fatigue and accelerated respiration, frequently amounting to dyspnoea. This is particularly apparent on going up stairs. A sense of suffocation or tightness across the chest, too, is frequently noticed; and these symptoms render it probable that some accumulation of serum has taken place in the air-cells of the lungs.

The heart is liable, from very slight causes, to palpitation and syncope. The pulse is quick and small, or sometimes natural in point of frequency, but *very feeble*. Occasionally there may be observed that throbbing of the temporal arteries which is very common in cases of great general weakness from profuse bleeding. The appetite is bad, often entirely lost, and sometimes strangely de-

praved, 'with a craving for chalk, slate, lime, &c.' Dyspeptic symptoms are particularly distressing.

The mind sympathizes with this morbid condition of the body. The patient gradually falls into that irritable state when slight and trivial causes produce great uneasiness; when the opening of a door, or the entrance of a stranger, hurries the pulse and aggravates the symptoms. In common language, she is *nervous* and hysterical.

This state of things may last for a great length of time,—a twelvemonth or more; sometimes aggravated, but never entirely subsiding. By degrees, if no relief is obtained by the efforts of art or nature, the symptoms occasionally assume a more serious character. Anasarca supervenes, or a genuine hectic is at length developed; and the patient, after a most painful and protracted illness, dies consumptive. More frequently, the disease, in the course of two or three years, wears itself out. The whole train of symptoms denotes a weakened state of the general system and great laxity of fibre. Very little is known regarding the causes of chlorotic amenorrhœa. It seldom originates after the age of twenty-three. It may sometimes be traced to circumstances which obviously debilitate, such as want of air and exercise, bad food and bad air; but it often takes place where these causes cannot operate; as in the upper ranks of life. It is a frequent complaint among the domestic servants in this town soon after their arrival from the country, and it may reasonably be attributed to the sudden change from the active employment and pure air of a farm-yard, to the close confinement and heated atmosphere of a London kitchen.

The treatment of amenorrhœa is to be guided altogether by a consideration of the character of the attendant symptoms, without reference to the state of the uterine functions. To the practitioner, therefore, it is a matter

of indifference, whether the obstructed menstruation is the *primary* cause of all the symptoms, or only one in the general series. Such an opinion, indeed, is in direct opposition to a long-established theory in medicine. It was at one time a prevailing belief, that certain drugs possessed a peculiar property of exciting the uterine vessels to action, and the treatment of amenorrhœa was thus reduced to a fixed principle. Juster notions of pathology have banished the tribe of emmenagogue medicines. It is now acknowledged, that the uterine functions can be restored only by measures possessed of *general* efficacy; and that when the system returns to a healthy condition, menstruation, which is a healthy action, will in most cases naturally follow. To bring the system into this desirable state we must, in some instances, have recourse to lowering, in others to *tonic* remedies. Symptoms must be closely watched, and treated as they rise.* Unbiased by theory, the student must learn that in this disease, more perhaps than in any other, he may require to take blood one day while he supports the system the next.†

When obstructed or irregular menstruation is attended with marks of strength of the general system, and local

* [To ascertain whether the disease originated in the system or the uterus, the general debility which preceded the suppression will determine it. If the patient is taken with a sudden suppression, from a state of health, then the disease is local, except it proceed from a general cause, as fatigue, cold, mental emotion, bad diet, &c.]

† [When the suppression has happened from causes operating during the flow, as cold applied to the feet, mental emotions; pain in or about the uterus, violent hysteria, fever, spasms of the stomach and intestines, are the general results.]

V. S. if the patient be plethoric; warm diluents, with nitrous powders; semicupium; saline injections; local bleeding by cups or leeches from the hypogastrium, are the most effectual remedies.

When it proceeds from consumption or dropsy, the indications must be general, and addressed to these particular diseases; emmenagogues in such cases would be entirely useless.]

determination of blood, 'heat of skin, frequent pulse, flushing, and irregular pains,' great benefit is derived from a small bleeding at the arm. It is in fact, in many cases, the only means in our power of relieving the urgent symptoms. 'Local bleeding by leeches has been proposed, and has succeeded.' A hip-bath is useful with the view of diffusing the circulation generally, and of taking off any spasmodic constriction or chronic inflammatory action which may exist in the vessels of the uterus. Low diet, saline purgatives, 'taken every day, or what is better, pills with aloes,' but above all, regular exercise in the open air, will contribute to a favourable result. I have noticed in several cases, that nothing tended so effectually to assist the constitution in throwing off this disease, as change of climate.*

Many cases, however, of obstructed, and *almost all* of *retained* menstruation, are attended with those marks of languid circulation and of debility or atony, which are generalized under the title of chlorosis. This state of body demands a very different system of management. If, as generally happens, there are evidences of accompanying disorder in the stomach and primæ viæ, a gentle emetic or a mild purgative may with propriety be premised. But the great object of treatment is to give tone to the system. Systematic writers add, that we are further to attempt to excite the uterine vessels to action.

The first indication is fulfilled by directing moderate exercise,† 'wine,' a nourishing diet, change of air, 'agreeable company,' cold bathing during the summer season, and the use of some bitter medicine that may improve

* [As soon as the plethoric condition of the system is subdued, a combination of the oxide of iron, myrrh, and supercarbonate of potash, or the black hellebore alone, will be found to be valuable.]

† [The exercise, where the system admits of it, may be such as riding, jumping, dancing, combined with friction, the warm bath to the feet, hot bladders or bottles to the hypogastric region, and finally marriage.]

digestion, or of a more powerful *tonic*, that may strengthen the constitution generally. A weak infusion of gentian or cascarilla may be given in the first instance, and the more powerful bitters afterwards, as the tone of the stomach improves.

℞. Cascarill. cort. contus.
 Columb. rad. a ʒi.
 Aq. Bullient ʒvi.
 Liquori frige facto adde Tinct. Columb. ʒiii.
 Spirit. amm. aromat. gtt. xxx.
 Syrup aurant. ʒiii.
 Sumat ʒvi. bis vel ter die.

Attention must be paid to secure regularity in the alvine evacuation, 'an emetic if the tongue or stomach be foul,' and the bitter purgatives combined with myrrh, have long enjoyed a high reputation in the treatment of this disease.* Five or ten grains of the pil. aloes c. myrrha may be directed every night, or a dose of the tonic aperient pills twice a day.

℞. Pulv. myrrh.
 Rhei. ʒii.
 Aloet. socot.
 Ext. chamamœl. a ʒss.
 Ol chamamœl. gtt. x.
 F. pill. xxx.
 Cap. ii. h. som.

 ℞. Rub. ferr. ʒiss.
 Rhei. gr. xv.
 Ol. anthem. gtt. v.
 Conserv. Rosar.
 M. f. pill. xx.
 Cap. iii. ter die in aqua acidul.
 Elix. vitriol.

* [A visit to a chalybeate mineral water will be found to be of great service. The water should be gently warmed, by corking it tight in a bottle and putting it into warm water. A solution of sulphate of iron, in the quantity of 2 grs. to the half pint, in Seltzer water, will answer every purpose of mineral water.]

Steel possesses the most unquestionable power over this form of constitutional weakness. In no other state of disease, indeed, is its direct tonic virtue so unequivocally demonstrated. Six drachms of the *mistura ferri composita*, with an equal quantity of cinnamon-water, may be given twice a day, and the dose gradually increased. The *pilulæ ferri cum myrrha*, in the dose of ten grains twice a day, may be substituted if this should disagree with the stomach. The *form* of the medicine may be frequently varied; and as all tonics lose their effects by long continuance, their employment should be *occasionally* suspended. Where great languor and lowness of spirits prevail, camphor and the volatile alkali are serviceable.

R. Mistur. camphor. ℥i.

Spt. ammon. aromat. gutt. xxv.

Spt. lavandul. compos.

Syrup. sing. ℥i.

M. f. haust.—To be taken when languid.

‘When there is a disposition to dropsy, laxatives, squills, and preparations of steel, bark, elixir vitriol, and the flesh brush will be proper. The *polygala senega* has been praised by Dr. Chapman and Dr. Hartshorne; it is given in decoction and infusion. Like all other remedies of this class, it deceives and cannot always be relied on.’

Of the influence of *direct* emmenagogues I have already expressed my total distrust. In cases, therefore, where we have succeeded by these means in strengthening the system, and the menses still remain obstructed, time, and those inexplicable changes which take place in the constitution in the progress of life, can, I believe, be alone relied on. But their operation is commonly too slow for the anxieties of parents, and a variety of *stimulating* drugs have been resorted to with the view of *forcing* the uterine

vessels to action. Of these the most in repute are, the tincture of hellebore, the powder and oil of savine, the tincture of cantharides, galbanum, ‘mustard seed, myrrh, guaiacum, valerian, nitrous acid, castor, soot, calomel,’ and the oil of turpentine.* That they have occasionally succeeded it would be in vain to deny; but in many cases they disorder the stomach and bowels, and are much better avoided. ‘The volatile spirits of ammonia, in the quantity of ʒi. to the half pint of water, injected into the vagina, cured this disease in the practice of an Italian physician. It has succeeded also in this country.’ Electricity has been recommended with the same intention, and has proved useful in a few cases. The cheerful amusements of society, however, have an influence over the actions of the uterus, much greater than what belongs to any means of a more directly *remedial* character.†

DYSMENORRHŒA, or painful menstruation, is a state of disease, which, though not associated pathologically with amenorrhœa, may be mentioned here, as my notice of it will be short. It is a common and, though not dangerous, very distressing state; in which medical assistance is frequently solicited. The pain in the loins is often in

* [Madder, given in very large doses, I have seen in the Pennsylvania Hospital to do good. It was administered in about three times the usual dose.]

† [Electricity directed through the uterus, has occasionally been useful. Tourniquets also, applied so as to obstruct the blood going to the lower extremities about the menstrual period, has also been serviceable; also a mustard emetic, and the warm bath about the same time. Dr. Dewees considers the guaiacum as particularly useful.]

the highest degree acute, lasting two, or perhaps even three days. Small portions of coagulable lymph are sometimes discharged along with the menses, which are usually scanty.* It sometimes happens that dysmenorrhœa is attended with several of those symptoms of general constitutional disturbance described (page 417) as accompanying chronic obstruction of the menses in plethoric habits. Under such circumstances, the occasional use of aperients, with regular exercise, will contribute to the relief of the patient. The disease too admits of some relief from a small blood-letting, the hip-bath, sitting over the steam of hot water, and other relaxing measures.† The volatile tincture of guaiacum has been found useful. Narcotics are generally resorted to; as Dover's powder, in

* [This disease is described by Morgagni very‡ accurately: it consists, says he, of a triangular membrane of the shape of the uterine cavity; the inner surface is smooth, and seems to contain a fluid; the outer surface is rough and irregular; and as soon as it is expelled, it is followed by the lochial discharge. It does not, as has been supposed, destroy the power of conception. Sometimes the membrane protrudes of the size of a fig, and may be pulled away with the fingers. This disease is important, as it may be mistaken for pregnancy, and character is often involved.]

† [In general, mild emmenagogues give the greatest relief, as madder, rue and saffron. Sometimes there is violent bearing down, as if the patient wished to expel the uterus itself; this particularly occurs when the menses are nearly or wholly obstructed. If no shreds of membrane are voided, and the affection appears to be entirely organic, then opium in large doses is the best remedy.§ If the patient be subject to spasms, or colic with headache and vomiting, bitters, laxatives, exercise, tincture of hellebore, a diet of mutton, beef, or fowls, to the exclusion of vegetables during the interval, and large doses of opium, with sinapisms during the pain, is the proper treatment.]

‡ Epist. xviii. art. 12, quoted by Burns.

§ Burns, 1825, 159.

the dose of ten grains, given alone, or its combination with the extract of conium, as in the following recipe—

R. Extract. conii. gr. xx.

Pulv. Ipecac. compos. 3ss.

M. & divid. in pillul. x.

Take one every third hour. If it does not remain on the stomach, it must be given in injection.

They are certainly of some use ; but in very many cases the disease recurs with unconquerable obstinacy, and baffles for a time every effort of medical skill.

CHAP. IV.

MENORRHAGIA AND LEUCORRHŒA.

Division of Menorrhagia into Species according to the State of the Uterus—and of the general System—Phænomena of the common or active Form of Menorrhagia—Of passive Menorrhagia—Their Causes and Consequences—Treatment.—Pathology and Treatment of Leucorrhœa.

THE pathology of menorrhagia is very complicated: and before entering on the consideration of that variety of it which strictly falls within the province of the physician, I shall attempt to explain under what different circumstances it occurs, and how necessary in practice is a division of it into species.

1. The term menorrhagia is, in the first place, applied both to profuse menstruation, and to actual hæmorrhagy from the uterus.* Menstruation is considered as *profuse*, either when the quantity is greater than natural, or when the intervals are shorter. This state of the function is sometimes, but by no means always, an object of medical

* I take it for granted, that the student is informed of the *physiology* of the uterine functions, and is sensible that the menstruous fluid is not blood, but a peculiar *secretion* from the vessels of the uterus.

care. There is great diversity in the *quantity* of the menses in different women, in different climates, and in the same woman under different circumstances; and this must be borne in mind when estimating the degree in which menorrhagia exists. Here, as in the case of obstructed menstruation, *accompanying* symptoms must be looked to; and an inordinate flow of the menses is not to be viewed as a *disease*, unless coupled with pain, fever, weakness, or disturbance of some other function.

2. The discharge of *blood* from the uterus is to be distinguished as it occurs connected, or unconnected with pregnancy. The former opens one of the most extensive and interesting fields of inquiry in the obstetrical department of medicine. It requires, however, a previous survey of the physiology of the impregnated uterus, and is therefore unfitted for investigation in this work.

3. Cases of hæmorrhagy from the unimpregnated uterus admit of an important practical distinction, into such as are purely functional, and such as are connected with organic disease of the uterus, more especially cancerous or malignant ulceration about its cervix. Nothing can be imagined more distressing than this latter state of disease. One of the first evidences of it is a gush of blood from the uterus, which recurs at intervals. In its progress it is attended by severe 'darting' pains of the loins and thighs, 'aching in the back, bearing down, dysury, mucous discharge, itchiness of the vulva, erysipelas and flabby swelling of the same part.* Flatulence, heart-burn, vomiting, and cutaneous eruption also often attend it.' Failure of the appetite, 'the whites,' extreme weakness, and emaciation. The flooding at length is almost constant, 'with a discharge of foetid and bloody matter, retention of urine,' and the patient after the lapse of some

* Burns, p. 98.

months dies bloodless and exhausted; but with a mind painfully sensible to the miseries of her own situation. Such a case can be relieved only (and that partially, by the internal administration of narcotics, beginning with *cicuta* and ending with opium, ‘by excessively low diet, and other antiphlogistic measures,’ and by the use of astringent and anodyne injections.*

* [There are various kinds of ulcerations of the uterus. When it is simple, and attended with pain, on pressure by the finger, or in coitu, it soon gets better by mild injections, and keeping the parts perfectly clean.

When it occurs from morbid causes, as in the *phægedana* or corroding ulcer of Dr. Clark, which is distinguished by a heat, gradually increasing as the disease advances, till it resembles a burning coal, with a constant and not a shooting pain; with a copious discharge of foetid purulent sanies, it is with difficulty curable. In this disease the pulse is small and frequent; the flesh wastes away, and the inguinal glands occasionally swell on examination by the vagina, the part is sore to the touch, and the destruction which has taken place is evident.† Extensive ulceration, with adhesions of the intestines to each other, abscesses containing healthy pus, the uterus sometimes completely ate away; the remaining part of the uterus thickened, like soft cartilage, with here and there small cysts, not larger than pin heads.‡

It generally occurs after the cessation of the menses, and is difficult to cure. Mercury is generally prejudicial, though it is said it has sometimes effected a cure. A very weak solution of nitrate of silver, nitrous acid, diluted so as to be weaker than common vinegar, a tepid decoction of poppies, and water, with laudanum in it, have all been useful as injections.§ Fomentations to the abdomen; frictions with camphorated liniment to the back relieve: opium in large doses is also necessary.|| *Hyscymus*, *cicuta* and other narcotics may also be tried.

There is another ulcer, which is hollow, glossy, and smooth, with hard margins, and the parts of the cervix around it, indurated and somewhat enlarged, whilst the other parts of the uterus are healthy. The discharge is serous and sometimes purulent; the pain is constant but not acute, the disease advances slowly and kills by hectic.¶

Local bleeding, the hip bath, saline purges, and spare diet, have been tried, but they are of little use.

† Burns, p. 95, 1825.

‡ Ibid.

§ Ibid. p. 96, 1825.

|| Ibid.

¶ Ibid

4. Hæmorrhage from the uterus, strictly functional, occurs in two different states of the general system. It is sometimes attended with marks (more or less distinct according to the period of the disease) of increased action throughout the body, and is undoubtedly *dependent upon* such a state of constitution. This is the *usual* form in which menorrhagia occurs in the practice of the physician. It may be distinguished by the name of *active* or common menorrhagia, and it is to this variety of the disease that my attention will principally be directed. On the other hand, it is *occasionally* observed in connexion with general weakness. There is here, however, an

The warm salt water bath has been used with more success; leeches to the groin, with gentle laxatives, have succeeded better. When the ulcer is small and the parts simply indurated, these remedies also succeed well. In this stage, there is generally leucorrhœa, and pain in the region of the uterus. A salivation is sometimes useful, but it must be watched, as it may hasten ulceration.*

A granulated excrescence springs from the mouth of the womb, it has a broad base, a granulated surface, and a brittle substance, with fragments, which when broken off are white. Pressure occasions little pain, though it is generally more or less painful. The discharge is watery and transparent, and when the excrescence is large it wets many napkins. The pelvis is filled with the tumour in nine months. The ligature, which reduces the tumour to a mere glairy substance, is to be applied; or astringent injections. Topical bleeding is of no use.†

There are excrescences also arising out of a lobulated or fissured state of the parts, which bleed readily and profusely, and when not irritated discharge serum copiously. If a ligature cannot be applied to them, nothing can be done but palliate the symptoms.‡ A sense of heat with pain, with a slight mucous discharge, at first followed by fœtid pus. There is often a small ulcer, without hardness, about the os uteri, painful to the touch, and bleeding after coition. Mercury is the only cure for this ulceration.§

Muco-purulent discharges may be the result of sympathy; may arise from worms in the intestines; or from a diseased liver. The primary disease must be first cured in order to remedy it.||]

* Burns, p. 96.

† Ibid. p. 97.

‡ Ibid. p. 98.

§ Ibid.

|| Ibid.

obvious source of fallacy, to which I shall presently advert.

5. Lastly, menorrhagia requires to be considered in some degree as a *local* disease, and it will be found to concur with very opposite states of the uterine vessels. It is sometimes the result of local increased action, independent of any general febrile disturbance. On this principle we explain its being a sequel of frequent miscarriages, and a common complaint among prostitutes. At other times, it is as obviously connected with a morbid degree of relaxation in the uterine vessels. The parts are relaxed to the touch. Instead of the firm feel of health, the uterus gives to the finger the sensation of œdema or flabbiness.

After this enumeration of the several circumstances, both constitutional and local, under which menorrhagia appears, I recur to that form of the complaint in which I have stated that the advice of the physician is most usually sought. The *active* hæmorrhagy from the uterus is attended with fever. It is ushered in by rigors, headache, severe *bearing-down* pains of the loins, followed by a hot skin, thirst, restlessness, and a frequent, hard, or full pulse. The discharge of blood varies in quantity, but is often very profuse. The same habit of body continuing, leads to many symptoms of *debility*—œdematous feet, cold extremities, paleness of the skin, a weak pulse, lassitude on taking exercise, dyspepsia, palpitations, and a sensation of sinking at the pit of the stomach. In this state of *apparent* or febrile debility, the patient may perhaps *first* come under the notice of the practitioner; and he will then often find it difficult to divest himself of the feeling that these symptoms indicate the true nature of the disease, and the necessity of *tonic* medicines. Such cases, however, are very different from those of *passive* or *atonic* hæmorrhagy, and they may commonly be dis-

tinguished by tracing the symptoms to their origin, and by some still *lurking* proofs of the existence of feverish action. The tongue perhaps is white, and the urine high-coloured and scanty, or there is thirst, and disturbed sleep. These are the symptoms which in such cases should be the guide to our practice.

The genuine *passive* hæmorrhagy from the uterus is a much rarer species of the disease. It occurs only to women in the lower ranks of life, and arises from a scanty and impoverished diet, laborious exercise, bad air, and long watching. I have noticed in dispensary practice, that washerwomen and night nurses who live much upon tea, and undergo great bodily fatigue, are those who chiefly labour under it. Whatever debilitates the body generally, will, under certain unfavourable circumstances of the uterine system, then, bring on atonic menorrhagia.

Common or active menorrhagia, on the other hand, has for its exciting causes whatever will increase plethora, and determine the blood with more than ordinary force into the vessels of the uterus. In the upper ranks of life it is brought on by too full living, heated rooms, late hours, and the want of sufficient exercise;—in the lower ranks, by the abuse of spirituous liquors;—and in both by exposure to cold. Akin to these causes of menorrhagia are those which operate locally,—excess in venery, costiveness, and consequent straining at stool, severe exercise, and even long-continued dancing.

Other circumstances, however, must be taken into consideration in developing the causes of uterine hæmorrhage. It is a very rare complaint with young unmarried women, and it cannot be doubted that frequent child-bearing gives a predisposition to it. It seldom originates even with married women before thirty years of age; but from that time to the period when the discharge ceases altogether, the tendency to it greatly increases. Many

women, indeed, who had never suffered from the disease before, experience it to a greater or less degree at the time of the cessation of the menses. It is well ascertained also, that there exists in some women a *natural* inherent weakness of the uterus, and consequent proneness to menorrhagia.

Functional hæmorrhage from the uterus is not a dangerous disease. When very obstinate, it saps the foundations of the constitution, and induces more alarming complaints; but a fatal event from the mere loss of blood is hardly upon record.

Menorrhagia, when it occurs as an active hæmorrhagy, attended with fever, 'firm and full pulse,' and bearing-down pains, must be combated by *depleting* measures adapted to the violence of the disease. Blood-letting is often necessary. If there is much pain in the loins, we should direct cupping in that part to the extent of ten or twelve ounces. 'The diet should be dry and innutritious.' Saline aperients should be given so as to ensure an open state of the bowels. A light spare diet is to be enjoined, and confinement to a bed or sofa. The bed-clothes are to be as light as is consistent with comfort, 'and the room must be cool and airy; the drinks must be cold; wine and all stimuli must be avoided.' Napkins dipped in ice-cold water are to be applied to the lower parts of the abdomen. Cold injections holding in solution alum, or the sulphate of zinc, may be thrown up three or four times a day; or in slighter cases the parts may be frequently moistened with a sponge dipped in some astringent lotion, such as the liquor aluminus compositus.*

* [In Menorrhagia, emetics have been given with the most decided advantage by Dr. Eberle. In his valuable book on the *Materia Medica* he tells us, that he administered with the most unequivocal benefit ipecacuanha, so as to produce vomiting with the most decided effects, and to arrest the hæmorrhage.]

If the stage of active excitement requiring these vigorous measures should have passed by before assistance is required, the practitioner will be careful to regulate his treatment on the same principles, while he proportions his means to the strength of the patient's habit. Saline draughts, containing Epsom salts and antimonial wine, will now be required, and the same attention must still be paid to diet and *regimen*. 'Nitre has been lately used with the greatest success.' If all marks of feverish action have subsided, the mineral acids, which are both astringent and tonic, will be found eminently serviceable. They are commonly given in the infusion of roses, as follows—

R. Infus. ros. comp. ℥ss.
 Acid. sulphur. dilut. gtt. xv.
 Syrup. ℥i.
 M. f. haust. quart. hor. repet.

A proportion of Epsom salts may be added, so as to act gently on the bowels. In severe cases, we must attempt to check the hæmorrhage by more powerful astringents, as alum—

R. Alum. ℥i.
 Conserv. rosar. canin. ℥i.
 M. f. bolus sext. hor. sumend.

or the cerussa acetata—

R. Plumb. superacetat. gr. ii.
 Extract. hyoscyam. gr. iii.
 M. f. pillul. man. et noct. sumend.

Decoctions of pomegranate or oak-bark, containing alum, should be frequently used in the form of injection. If the discharge be so profuse as to create alarm for the safety of the patient, she should be freely exposed to cold air, 'the vagina should be stuffed with cloths, or a sponge, to promote coagulation; with two grains of opium every two

hours, or a proportional quantity given in injection,⁷ and a lump of ice applied within the vagina.

To diminish the general irritation that often prevails in the passive forms of uterine hæmorrhagy, opium may be advantageously given. Five drops of tinct. opii may be added to the following draught—

R. Infus. ros. ℥ss.
Acid. sulphur. dilut. gtt. xv.
Syrup. ℥i.
M. f. haust. quart. hor. repetend.

When the constitution is much enfeebled, the decoction of bark and acid is of essential service.*

R. Decoct. cinchon. ℥x.
Ac. sulph. dilut. gtt. xii.
Tinct. cardamom. comp. et syrup. aurant. a ℥i.
M. f. haust. t. ind. sumend.

* [If the patient be excessively weak, the vagina must be kept plugged; and if it be removed, it must be only to inject strong astringent solutions. The strength must be supported by soups; by the moderate use of wine, taken cold and spiced; opium, cordials; gentle warmth; the volatile medicines, as the spirit corn. cerv. and volatile alkali, in proper doses.

To prevent its return in the plethoric, occasional bleeding; moderate diet; little drink, or fluid food of any kind; exercise; purgatives, as Cheltenham salts, will be proper. Where it depends on an irritable state of the bowels, opium is decidedly useful. Flannel; a hard bed; the daily use of cold bathing to the pelvis; injections of cold water into the vagina; and as soon as the plethoric state of the vessels is removed, astringent injections, of which oak bark is the best, should be used. The cold bath, with mineral astringents and kino, are also proper.†

To strengthen the system, a diet of animal food, as beef, mutton, and fowls; and claret, will be proper; the cold bath must be used; frictions to the surface will also be valuable. When there is a constant stillicidium from the vagina, tonics and astringent injections are necessary. Sometimes the clots remain behind; then injections are useful.]

† Burns, p. 164.

An increased secretion of mucus from the vagina constitutes LEUCORRHŒA, or fluor albus; a very frequent, troublesome, and obstinate complaint. In many respects its pathology is associated with that of menorrhagia. It frequently accompanies profuse menstruation, and is one of the most constant attendants upon the natural decline of the menstrual discharge. In many cases it appears also to depend upon the same causes. Slight symptoms of feverish excitement attend it, or sometimes the more obvious marks of *plethora*. Occasionally, but I believe more rarely, it is connected with general weakness, as indicated by paleness of the skin, a weak pulse, and œdema. Lastly, it depends in certain cases on *local* irritations.*

The treatment of leucorrhœa must of course vary with the character of the accompanying symptoms. Where the system is heated, antimonial diaphoretics, laxatives, and cupping glasses to the loins are indicated; the cold bath, tonics, and astringent injections, where it is debilitated. In some cases the checking of the discharge might possibly be prejudicial.* In many this fear is groundless, the disease continuing, without injury to the general health, in spite of every effort.

* [In the use of injections in this disease, a judicious remark is made by Dr. Eberle in his valuable treatise on the *Materia Medica*, namely, that when there is any heat or other marks of a plethoric state of the vagina, ardor urinæ, &c., that the strength of the injection must be reduced, and properly adapted to the state of the case.]

CHAP. V.

HYSTERIA.

Marks of an hysterical Habit—Phænomena of the hysterical Paroxysm—Prognosis—Diagnosis—Pathology—Dependence of Hysteria on the state of the nervous System—of the uterine Functions—of the Stomach and Bowels—Treatment—Influence of Antispasmodics.

OFTEN as I have had occasion to animadvert on the inconveniences and difficulties of nosological arrangements, in no instance, perhaps, are they more strikingly displayed, than in that before us. Hysteria, indeed, has in all ages proved a fertile theme of nosological controversy. So various are its symptoms, so widely extended and so obscure its pathological relations, that the very assigning to it a situation, presupposes some *theoretical* notions concerning its nature, which have been and may still be disputed. I have here placed it among the diseases of the uterine system, following, in this respect, the opinions (or perhaps what some might call the *prejudices*) of an early period of medical science. The objections, however, which may be urged against this arrangement, will be of little moment if the student derive his notions of the disease from the pathological views which will be

taken of it, rather than from the division of the work in which they happen to be discussed.

The symptoms of hysteria may be subdivided into such as mark the hysterical habit, or constitute the hysterical paroxysm. The *hysterical habit* is characterized by great irritability both of body and mind. There occur sudden fits of laughing and crying, without any cause, or from causes wholly inadequate; the patient crying where she ought to laugh, and laughing where she might be expected to cry. There is great dejection of spirits, a causeless dread of evil, a hurried manner, and a variable temper. With this morbid condition of the mind are associated many symptoms of bodily derangement—dyspepsia in all its shapes, the *globus hystericus* or sensation of a ball rolling about in the stomach and gradually ascending to the throat, costive bowels, fits of difficult breathing, palpitations, a peculiar kind of nervous headache commonly called the *clavus hystericus*, and a copious flow of *limpid* urine.

These symptoms afford, of themselves, sufficient evidence of the hysterical disposition; but in all severe cases the more striking characters of the disease are developed by the occurrence of paroxysms of *convulsion*. These are often very violent, evincing a force that overcomes all opposition. The trunk of the body is writhed to and fro, and the limbs are variously agitated. The fists are closed so firmly that it is difficult or even impossible to open the fingers. A frequent symptom is that of beating with the closed fist upon the breast violently and repeatedly. There is an involuntary utterance of shrieks and screams, with fits of laughing and crying, sometimes accompanied with, or succeeded by, an obstinate and distressing hiccup. In this state the patient continues for a longer or a shorter time; often for twenty-four hours, though of course with occasional *remissions*.

More or less suddenly, and frequently with repeated sighing and sobbing, the patient returns to the exercise of sense and motion, generally without a recollection of the circumstances of the fit. For some time afterwards she appears quite spent, and lies stupid, and careless of what is going on around her.

Formidable as these symptoms appear to the bystanders, they are attended with no real danger, at least for the time. Where the hysterical habit, indeed, is very strong, the fits gradually acquire more and more of an *epileptic* character, until at length (though probably not until after two or three years,) the disease merges altogether in epilepsy. It cannot therefore surprise us, that in many cases the diagnosis of epilepsy and hysteria should be a matter of considerable difficulty. I believe it to be often impossible. The symptoms which are chiefly to guide us, are the globus, the variable mind, the flow of limpid urine, and the degree of coma subsequent to the convulsive paroxysm. But it is not only from epilepsy that hysteria is difficultly distinguished. There is hardly a disease in the whole nosology of which it has not imitated the symptoms, and that with surprising accuracy. I have seen hysteria accompanied by constant vomiting; by a complete ischuria renalis; by the most obstinate colic; by all the symptoms of genuine asthma. Authors have described in like manner an hysterical jaundice, an hysterical mania, an hysterical diabetes. These circumstances require to be borne in mind with reference to *prognosis*. It is hardly necessary to apprise the student, that the danger in these cases is to be estimated, not from the violence of the leading symptoms, but the character of the *habit* in which they occur.

Such are the phænomena of the *hysterical passion*. Its pathology is complicated and difficult; for in attempting to investigate its causes we must direct our attention

equally to the nervous system generally, to the uterine functions, and to the state of the stomach and bowels. It is only by taking this enlarged view of the subject that we can arrive at any adequate explanation of its varied appearances, or reconcile the conflicting opinions of authors of acknowledged merit.

1. Hysteria is scarcely ever observed except in females whose nervous system is peculiarly irritable. This is by no means a necessary concomitant of a *delicate* frame of body. It frequently exists along with a full *plethoric* habit, and is brought on by a life of dissipation and inactivity, late hours, and heated rooms. At other times it is manifestly connected with a want of tone in the general system; hysteric symptoms, therefore, occasionally accompany the convalescence from acute diseases, and co-exist with severe diarrhœa, and such chronic ailments as produce much constitutional debility. In this *irritable* state of the nervous system (whether dependent on plethora or weakness) the hysteric paroxysm once excited, is often renewed by very slight causes, which under other circumstances would have produced no effect, such as mental emotion, irritation, or fatigue. In fact, it becomes by habit riveted in the body.

2. The connexion of hysteria with morbid states of the uterine system has given a name to the disease, and it is undoubtedly an important consideration. This may be illustrated in a variety of ways. Cases of hysteria in males have been recorded, but upon no very good authority. The complaint is in truth *peculiar* to the female sex. It commences at the age of puberty, and seldom occurs after the thirtieth year of life. Its attack frequently coincides with the menstrual period. It chiefly prevails among unmarried, or barren women. It accompanies chlorosis, amenorrhœa, menorrhagia, and all irregularities of the menstrual function.

3. Hysteria is intimately connected with disordered states of the stomach and bowels. The nervous system may be irritable, the menstrual discharge may be obstructed, but it often requires a fit of dyspepsia, or a very costive state of the bowels, to develop the hysteric paroxysm. Of late much importance has been attached to this feature in the pathology of hysteria, and by some it has even been supposed to supersede every other. This confined view of the subject, however, is neither consonant to general pathology, nor is it borne out by the results of experience. A practitioner who trusts to purgatives alone will *sometimes* succeed,—but he will occasionally fail, where another of more enlarged views is happily successful. In the treatment of hysteria, all the views which I have now taken of the disease merit an equal share of attention.

The first object is the relief of the patient during the actual paroxysm of convulsion. Little, however, can be done at this time. Where the attack is very severe and long-protracted, the patient young and plethoric, and the pulse full, blood may safely be taken from the arm; but we must not anticipate much benefit from the measure even under these favourable circumstances. Its good effects are for the most part only slight and temporary. Cold water to the face, volatile alkali to the nose, and æther to the temples, are often equally effectual. Turpentine or assafoetida glysters have sometimes succeeded in cutting short the fit.* The power of swallowing being usually lost, or, at any rate, the teeth firmly clenched, the attempt to give medicines internally during the fit

* [Dr. W. P. C. Barton mentions, in his valuable *Vegetable Materia Medica*, on the authority of Dr. Thatcher, that two tea spoonsful of the powdered root of the *symplocarpus foetidus* or skunk cabbage, has been found very useful in stopping the fit.]

is commonly fruitless.* This must be reserved for the interval of the paroxysms, at which time they may be resorted to with a fair prospect of advantage. The *indications* of cure are to allay the excitability of the nervous system, and to improve digestion. The state of the uterine functions may in some cases also become an object of attention.

In full plethoric habits the *irritable* state of the whole frame is best combated by purging, low diet, and regular exercise. Purgatives have been found very useful in the practice of Dr. Hamilton,† who has noticed, that in this disease the bowels are often so *torpid* as makes it necessary to give them in full and frequently repeated doses. He observes, that the first purgatives may appear to aggravate the symptoms; but a perseverance in their use removes a mass of accumulated fæces, and with it the general irritation.

In languid habits *tonics* are called for,—myrrh, steel, and bark; ‘the *liriodendron tulipifera* furnishes a valuable bitter, which has been useful in this disease;’‡ a course of mineral waters; regular hours, cold bathing, horse exercise, and a generous diet. In every state of body in which hysterical symptoms arise, advantage is derived from the use of the foetid gum-resins, assafoetida, galbanum, and sagapenum; as also from castor, musk, camphor, valerian, æther, ammonia, and the essential oils

* [Dr. Eberle, in his valuable system of *Materia Medica*, mentions, that he has found emetics of the greatest benefit in the paroxysm of this disease; that when the patient is apparently lifeless they succeed most admirably.§]

† See Hamilton on Purgative Medicines, p. 131.

‡ Veget. Mat. Med. W. P. C. Barton, vol. i. p. 104.

§ See Mat. Med. vol. i. p. 31.

of amber and cajepu.* The utility of these medicines in the slighter forms of convulsive disease is unquestionable, and has procured for them the generic appellation of *antispasmodics*. The mode of their operation is altogether unknown to us. They are all stimulating or heating drugs, possessed of strong sensible qualities. They may be exhibited in various forms of combination. The *pilulæ galbani compositæ* in the dose of five grains three times a day is an approved and elegant formula.

Dyspeptic symptoms constitute so essential a part of the hysteric character, that the physician must naturally direct much of his attention to them. Flatulence so generally prevails, that the aromatic distilled waters, which possess in so eminent a degree *carminative* qualities, will be found very serviceable.

The remarks already offered on the treatment of primary dyspepsia preclude the necessity of my entering more at large on this branch of the medical treatment of hysteria. I have only further to add, that some management of the *mind* is also necessary. A woman can often by a little exertion resist the tendency to the fit, and by well-timed *firmness* on the part of the practitioner, the same desirable object may sometimes be obtained.

* [Dr. Eberle speaks favourably of opium as a valuable medicine in this disease: it often succeeds in allaying the convulsions, when nothing else will do any good. The spider's web is mentioned by the same celebrated writer as having been used with success: in his own experience he succeeded with it, particularly in chronic cases attended with a relaxed habit of body, and morbid irritability of the nervous system.]

CHAP. VI.

OVARIAL DROPSY

Varieties of ovarian Disease—Phænomena of Dropsical Ovary—Appearances on Dissection—Treatment.

MORBID anatomy has proved that the ovaria are liable to several kinds of disease. They have been found greatly enlarged, and converted into a firm white mass, feeling like cartilage, more or less intersected with membranous septa. At other times, one or both ovaria appear ossified. Still more frequently this organ is converted into a fatty substance, enclosing teeth and hair, the whole being surrounded by a firm membrane. The theory of the production of these latter tumours is very obscure, and has given rise to some curious speculations.* But these subjects can hardly be considered proper for investigation in this work. The symptoms which attend such diseased conditions of the ovarium are quite unknown, and can never therefore become an object of practice. I allude to them only in so far as they suggest the probability of there being *functional* diseases of the ovarium, of which these disorganizations are the results. Pathologists have long entertained the suspicion that such affec-

* See Baillie's Morbid Anatomy, page 410.

tions exist, and certain diseases of the uterine system (hysteria in particular) have been by some ascribed to this cause. The opinion can never, from the very nature of the subject, be viewed except as a plausible conjecture.

Omitting then these topics, as being too imperfectly known to admit of discussion, I proceed to the consideration of the only diseased state of the ovary which is ever likely to become an object of *practical* interest,—I mean that of dropsy. The symptoms that mark the early stage of dropsical ovary are very obscure, nor can the existence of the disease be ascertained, until it has made such a progress as to have formed a swelling at the lower part of the belly. This swelling is attended with a sense of *weight* in that part, and according as the right or left ovary is affected, the tumour and hardness are perceptible in one or other groin. When the disease is somewhat more advanced, fluctuation may generally be felt, sometimes nearly as distinct as in common ascites, but more usually obscure. Probably this depends on the degree of tenacity in the contained fluid.

The great mark of distinction between ovarian dropsy and common ascites, is to be found in the little disturbance which the former occasions in the constitution. The appetite remains good. There is no thirst, and the urine continues to flow as in health. Neither weakness nor hectic are produced, at least in the early stages of the complaint, and the menses are unaffected. So little does the disease influence the general health, that instances are on record of a woman becoming pregnant and bearing a child to the full time,* while one ovary was enormously

* [Sometimes, however, this is not the case; the disease begins with pretty acute pain about the groins, thighs, and sides of the lower belly, with disturbance of the stomach and intestines, and occasionally syncope.† Pain also in the mammæ is sometimes felt; milk is also secreted.

† Burns, p. 133. 1825.

distended by dropsy. 'It is also more circumscribed than ascites; swelling and induration of the inguinal glands also resembles it; they are however harder, more fixed, irregular, and more painful to the feel.' When the disease has reached a certain point, it produces many very unpleasant symptoms from its mere bulk,—difficult breathing, amounting often to what is commonly called orthopnoea, dyspepsia, costive bowels, swelled legs, with cramps, and a varicose state of the veins. 'The causes of dropsy of the ovary are blows, falls, frights, violent passion, or cold. Often no cause can be assigned.'

The progress of dropsical ovarium is subject to great variety. Instances have been met with where it proceeded rapidly, and proved fatal in one or two years. Much more commonly its advances are very slow, and life can often be preserved under it with tolerable comfort for many years.* Very few cases are recorded of a cure of this disease, either by the efforts of art or nature. It would appear as if the absorbents of the ovarium were hardly capable of being excited to the degree of action necessary for the removal of the fluid. In one instance only have I ever known such absorption to occur, but the relief here was only temporary. The ovarium again filled, and the patient ultimately died. Death takes place sometimes from *exhaustion*, and sometimes from inflammation supervening on the sac in consequence of tapping.

Generally, however, the symptoms are at first slight, and dependent on pressure and irritation of the parts within the pelvis; costiveness, piles, strangury, retention of urine, inflation of the bowels, and swelling of the feet, are also symptoms.† A tumor is felt between the vagina and rectum on examination, throwing the os uteri towards the pelvis, so that the disease may be mistaken for introversion of the womb.]

* A short time ago, I saw an elderly woman who had ovarian dropsy for thirty years. She died without having been ever tapped.

On dissection, the ovarium is found converted into a capsule, often of enormous size, and of variable thickness, adhering in most cases, but not universally, to the peritonæum lining the abdominal parietes. It is sometimes so large as to occupy almost the whole cavity of the abdomen. In other cases, instead of a single bag, the ovary is converted into a congeries of cysts, either separate or communicating with each other by considerable openings, and containing at times fluids of different kinds. Occasionally tumours of a firm texture are found attached to the inner surface of the capsule.

The fluid of a dropsical ovary is almost always mucilaginous, and of a bluish or sometimes chocolate colour. Without experience in the disease, it is difficult to give credit to the statements which have been published of the *quantities* of fluid observed in different cases. On the 9th January 1822, I drew off after death, from a single thin membranous cyst, eighty-two pints. I have heard of a hundred and twenty pints having been drawn off at once during life. The rapidity with which the fluid accumulates varies in different cases. In the Medical Communications (vol. ii. p. 123) will be found an interesting case of dropsy of the ovarium, in which nine hundred and sixty-four pints were discharged in the course of one year, at fourteen tapplings, making on an average a daily secretion of nearly two pints and a half. The disease lasted five years, during which time the patient was tapped forty-one times, and two thousand seven hundred and eighty-six pints of fluid were taken from her. In general it will be found, that when twenty-five or thirty pints are accumulated in the sac, the uneasiness from distention becomes so great that paracentesis is rendered necessary.

Of the causes of dropsical ovary very little is known. It does not appear that impregnation gives any peculiar

disposition to it. Among the recorded cases many occurred among unmarried women. It has commenced as early as the twentieth year of life ; but it is most frequent after thirty. Some cases may possibly have their origin in *inflammation* of the ovarium. This opinion is supported by the fact, that in several instances the disease has been attributed by the patient to a contusion or fall.

Little need be said on the subject of treatment.* Mercury has been tried, and found to be useless. The operation of tapping affords the only effectual relief which it is in our power to hold out.† A *radical* cure of the dis-

* [Palliatives will always be necessary, from the importance of the organ to the general system. If dyspeptic, steel, colombo, magnesia, chalk, and supercarbonate of soda, should be given : if costive, the gentlest aperients : if feverish, restless, and generally uneasy, the warm bath, nitrate of potash, with laxatives, as cream of tartar : if hysterical, foetid medicines ; and if these affections are violent, opiates : if there is local pain, leeches, blisters, and general bleeding. Patting on the tumour daily for a length of time, using a bandage so as to compress it, with solution of muriate of lime, and the warm bath, have succeeded in curing it under Dr. Hamilton's care. Willi cured a case of fourteen years standing by diuretics.‡ All means, such as rest, low diet, freedom from care, must be used.]

† [The tapping should be performed as rarely as possible, because it makes the water accumulate more rapidly ; so that in some instances, from the effect of tapping, it has accumulated to an enormous amount in a few days. The ovarium should be always tapped on the side on which it lies ; the right ovarium on the right, the left upon the left side, otherwise death, which has taken place from the neglect of this caution, may be the result. Opening the sac, and throwing in a stimulating injection has been tried, with the view of obliterating the sac. The irregular tubercular internal surface of the ovary, which entirely precludes the adhesion of the sides of the womb ; and the cavity consisting of many cysts, or filled with hydatids, and the fatality of the operation, are objections to this plan. The extirpation of the ovary after puncturing it, as practised by the eminent Dr. Nathan Smith, has succeeded. Sometimes the cyst adheres to the intestine, ulcerates and bursts into it : this termination only palliates, but never cures the disease.§]

‡ Burns, p. 138, 1825.

§ Ibid. p. 140-1.

case has been attempted by making a large opening in the cyst, with the view of inducing inflammation and adhesion, as in the case of hydrocele. Very powerful reasons, however, have been urged against this operation by Dr. W. Hunter,* and it appears in every respect unadvisable.

* See Medical Observations and Inquiries, vol. ii. page 41.

CLASS V.

CHRONIC CONSTITUTIONAL DISEASES.

CHAP. I.

SCROFULA.

General Outline of the Pathology of Scrofula—Marks of Scrofula in the healthy Conditions of the Body—Characters of scrofulous Disease—Structures affected by Scrofula—Causes of Scrofula—Hereditary Predisposition—Acquired scrofulous Diathesis—Causes leading to the Development of Scrofulous Disease—Principles of Treatment—Importance of pure Air—Sea Bathing—Nourishing Diet—Influence of tonic, alkaline, and other Medicines.—Treatment of Scrofulous Inflammation of the Lymphatic Glands.

THE pathology of scrofula is altogether *sui generis*. It does not assimilate with that of any other known disease. It is moreover a subject of very great difficulty. A full investigation of it presupposes an acquaintance with almost all forms of disease, and of the modifications of which they are susceptible. Its extent is unbounded. To the physician and the surgeon it is equally an object of

attention. Whether we regard symptoms, causes, or treatment,—whether we view diseases as external or internal, acute or chronic, a knowledge of the several doctrines connected with scrofula is indispensable to their complete elucidation. It may be considered, in fact, as the most important of those great links which bind together the infinitely varied ramifications of medical inquiry.

Interesting as scrofula is to the *general* pathologist, it cannot be denied that it is more especially essential in the inquiries of the surgeon. The principal forms of scrofulous disease fall under his cognizance, and from them the chief characters of the affection are necessarily derived. These considerations will point out how little calculated is this investigation for a work so brief in its plan, and so confined in its design, as the present. We may even go further, and say, that a subject of such extent and difficulty is ill suited for elementary works generally, and that the student should at first content himself with a superficial examination of it. Such at least is all that will here be attempted.

Scrofula is usually designated by nosologists as a morbid state of the *lymphatic glandular* system, but our notions of the affection would be very imperfect were we to view it only in this light. On the other hand, some have altogether denied to scrofula the name of a *disease*, and have considered it only as a peculiar habit of body giving a *predisposition* to morbid action. Without waiting to discuss a point which resolves itself into a mere dispute about words, I proceed to state, that independent of the unequivocal characters of scrofulous *disease*, there are marks by which, in the very healthiest conditions of the body, the scrofulous disposition may (not indeed with certainty, but with a reasonable share of probability) be distinguished. Of this kind are, a fair thin smooth skin, in which the blood-vessels are particularly apparent; light and soft

hair; large blue eyes, and a blooming complexion; the upper lip, *columna nasi*, and lower part of the nostril more tumid than natural; fulness and turgescence of the veins; long and slender fingers; and lastly, a narrow chest, and prominent shoulders. The scrofulous habit is thus characterized by a general laxity of muscular fibre, and delicacy of organization throughout the body. The mental faculties are usually developed early. The intellect is acute and lively.

The scrofulous diathesis, however, can never be decisively proved by the concurrence even of all these appearances. There must be superadded to them certain *morbid* phænomena, before its presence in the system can confidently be pronounced; and these will seldom fail to exhibit themselves, for scrofula is marked by a peculiar disposition to morbid action in the body. Among the earliest, the most frequent, and most characteristic symptoms of the disease, are 'small oval doughy' swellings of the absorbent glands, particularly those of the neck. This too is the mildest form under which scrofula ever appears. Such tumours sometimes continue for a long time, neither advancing nor receding, unattended by pain or any constitutional disturbance. Sometimes they subside spontaneously, but more frequently suppuration of an imperfect kind gradually takes place in them, 'the skin becoming livid and perforated with small holes, &c.' followed by open ulceration. The ulcers heal slowly, leaving ragged and unsightly scars, and are succeeded by other tumours, which run a similar course. In this manner the disease is often kept up for a series of years, until at length the constitution either throws it off, or it appears under some of its more severe and dangerous forms. 'Sometimes it appears in sudden swellings of the joints of the ancles, knees, fingers and toes.'

An opinion has been entertained, that in scrofula a

morbid matter is generated which has a *specific* influence on the lymphatic system, but there are no sufficient grounds for this notion. What the circumstances, however, are, which in a scrofulous habit render the lymphatic system so peculiarly liable to inflammation we know not. Scrofula affects equally many other structures,* and in all cases the inflammation which is excited has the same general character. It is of a chronic languid kind. The scrofulous abscess is distinguished by its jagged and uneven sides. The pus which it contains, instead of having a bland uniform cream-like appearance, is thin, or *ichorous*, and mixed with curdy flakes. The ulcer by which it is succeeded has a smooth, obtuse, and overlapping margin. The surface of the sore is of a light red colour, and the granulations are flabby and indistinct. For a great length of time, in spite of every care, it remains indolent, neither increasing nor diminishing in size.

There is hardly an organ or tissue of the body which can be considered free from the occasional ravages of scrofula. It appears sometimes in the head, in the form of small tumours, attached to the membranes, or imbedded in the substance of the brain or cerebellum, and laying the foundation of hydrocephalus. In the lungs, scrofula exhibits itself in the form of tubercles, scattered through their substance, modifying the character of inflammation in that organ, and producing genuine consumption. Scrofula, in like manner, attacks in their turn all the viscera of the abdomen, the liver, the peritonæum, the kidney, the ovaria, and above all, the mesenteric glands.

Of the external parts of the body liable to scrofulous

* The gradual expansion of the opinions of pathologists regarding the nature of scrofula, will be found ably detailed in an article in the Edinburgh Medical and Surgical Journal, vol. xviii. p. 121.

disease (independent of the lymphatic system) may be particularly specified, the tarsi, the thyroid gland, the mamma, the testicle, and lastly, the bones* and other structures connected with joints.† These varied forms of scrofulous disease constitute a very large proportion of the objects of a surgeon's attention. It would be desirable, certainly, to ascertain, and strictly according with the design of this work to point out, the unvarying, the *pathognomonic* characters of scrofulous complaints generally, and thus to limit the application of a term which is now perhaps employed too extensively. The task, however, is a very difficult one, and in the present state of the science hardly to be effected. Any *detailed* statement of the symptoms of these diseases belongs exclusively to surgery. I pass on, therefore, to the consideration of the *causes* of scrofula, a branch of the inquiry involving many interesting but doubtful points.

All periods of life are liable to scrofulous disease, but the tendency to it is certainly greatest in childhood, and again when the growth of the body is completed. If a person, most obviously scrofulous, passes his thirtieth year, he may then in a great measure consider himself secure from its ravages. Age has a singular power in modifying the liability which particular structures have to this disease. In early life the lymphatic glands, the tarsi, and the joints, are those which chiefly suffer. After puberty

* [The bones are particularly liable to it. It is supposed that they contain more gelatine and less earth than ordinary. The hip more particularly, and the spine, are common seats of scrofulous inflammation; giving rise to the morbus coxarius, and the curved spine, with palsy, before spoken of.]

† [Tumefaction and ulceration of the glands of the mesentery; induration and swelling of the same bodies under the skin; tubercles in the lungs in all stages of inflammation and its sequelæ, are the appearances generally found after death.]

the lungs are principally affected. In advanced life the disease, when it does occur, has a tendency to disorganize the abdominal viscera,—the liver, kidney, and prostate gland. ‘It is not contagious, nor transmissible by inoculation.’*

Much discussion has arisen regarding the propriety of calling scrofula an *hereditary* complaint; but the general observation of mankind has decided this question. It is not contended, that all the children of scrofulous parents are *necessarily* scrofulous, that the scrofulous taint can never be eradicated from a family, or that the disease is not occasionally generated in persons whose parents were free from any suspicion of it. The opinion must be received with limitations. Scrofula is hereditary as far as any disease can be so, as far as any kind of temperament or constitutional peculiarity can descend from parents to their offspring. Children of scrofulous parents undoubtedly often continue through their whole lives entirely free from the disease: but the spirit of the doctrine is this:—of two families of children, the one born of scrofulous, the other of healthy parents, the probability is strongly in favour of the disease breaking out in the former, rather than in the latter. ‘Often it passes by one generation, and appears in the next.’

That the scrofulous diathesis may be *acquired*, is a point which no one, I presume, would venture to dispute. The very notion of hereditary transmission presupposes some one in whom the morbid phænomena primarily appeared. The same causes which, operating in a minor degree, lead to scrofulous disease in those hereditarily predisposed, will, in a higher degree, *generate* it. It appears indeed to be satisfactorily ascertained, that no purity or strength of original constitution will exempt from the

* [See the Experiments of Kortum, p. 218, de vitio scrofuloso.]

ravages of scrofula those who have been long and repeatedly exposed to its exciting causes. In considering what these circumstances are which lead to the development of a scrofulous diathesis, we are to direct our attention principally to climate, town air, diet, modes of life, and lastly, previous disease.

1. The influence of climate is immense, and may be estimated by the following facts. In the East and West Indies scrofula is hardly known, but when the natives of either are brought into this or any European country, they suffer from it severely.* The prevalence of scrofula is directly proportioned to the coldness, or, more properly, to the *variableness* of the climate. Scrofulous affections are principally met with in all countries during the winter months. They rapidly improve, or disappear altogether, on the approach of summer, and this effect of warm weather upon scrofulous ulcers is important in *diagnosis* as well as in practice. 2. Among the causes of scrofula, the close confined air of a town appears to merit especial mention. The complaint is infinitely more common among the inhabitants of a town than among those of a corresponding class of society breathing the pure air of the country. It is notorious, that the population of our large manufacturing towns (Manchester for instance,) pent up during the day in cotton-mills, are of all others most afflicted with it. 3. Certain modes of life contribute also in no small degree to the development of scrofula,—confined habitations, want of cleanliness, sedentary occupations, irregular habits, but, above all, deficient or unwholesome diet. They concur in reducing the tone of the system below that healthy standard which is the surest preservative, not only against the attacks of scrofula, but of

* This was strikingly exemplified in 1816, when one of the West India regiments was stationed at Gibraltar.

every other disorder. The extensive influence of debilitating causes, lastly, is demonstrated by the prevalence of scrofulous affections subsequent to small-pox, measles, hooping cough, and other diseases which most unequivocally impair the energies of the constitution. Of late years, attempts have been made to connect the scrofulous diathesis in a peculiar manner with *primary* derangement of the digestive functions, but no sufficient reasons have been adduced in support of this opinion. It appears to me to be founded on very imperfect views of the mutual influence of the different parts of the animal œconomy upon each other.

These pathological considerations lead directly to practice. It is obvious, that the *prevention* of a disease, and in a great degree also the principles of treatment when it has broken out, must depend on a knowledge of its causes. The time is past when direct or *specific* remedies for the scrofulous diathesis could be proposed, with any prospect of obtaining the confidence of professional men. All that is now attempted is to avoid the obvious exciting causes, and to place the system in that state, in which it may best resist the operation of such as are more obscure, or altogether beyond our control.

Climate cannot, except in a few instances, be changed; but attention to clothing, more especially the use of flannel, will go far towards obviating many of the injurious effects of that in which we live. The importance of a pure country air, still more of the air of the sea-side, has been long and very generally acknowledged. There have been differences of opinion, however, as to the value of *sea-bathing* in scrofula; but it is hardly possible to entertain such now, after the ample experience of its power, which has been afforded since the establishment of the Margate Sea-Bathing Infirmary. Some caution is of

course necessary in its application. The constitution must have vigour to support the shock of immersion, and the system must be free from fever or latent visceral disease. In some cases, the warm salt bath may be preferable to the open sea; but there are few, even of the most aggravated forms of the disease, which are not benefited by sea bathing under judicious management. There is even strong reason to believe, that a perseverance in it for two or three years during the summer months, has materially contributed to assist the constitution in throwing off the disease altogether.

Regular exercise and early hours will of course be enjoined; but attention to diet is of all measures perhaps the most important, with a view to the permanent security of the patient. The value of a wholesome nutritious diet in scrofula can hardly be overrated, but the *asthenic* nature of the disease has often led both parents and practitioners to a hurtful extreme. They have overloaded a delicate stomach with full meals of stimulating food, wine, and fermented liquors; and thus, in their attempts to strengthen the system, have brought on the very condition of the stomach and bowels, in which the seeds of scrofulous action are most effectually laid. It should be remembered, that there is no morbid state, which is not, in one sense debilitating, and in which, by parity of reason, the same treatment is not requisite. The diet of a child liable to scrofula, then, should be nourishing, not stimulating, and given only in such quantity, and at such regular intervals, that the stomach may never be *oppressed*.

I would not wish to undervalue the influence of *remedies*; but it requires only a very superficial knowledge of the disease, to be convinced, that in comparison with those other means of relief which have been recommended (warm clothing, pure air, cold sea bathing, and

nutritious diet), they are of little avail.* Those which chiefly deserve confidence, are occasional gentle purgatives containing a small proportion of calomel, followed by the use of bitters and the carbonate of soda, when the functions of the stomach and bowels are impaired; the more powerful tonics, steel, bark, or the mineral acids, when the constitution is much debilitated; and certain mild alteratives, such as the decoction of sarsaparilla, and the liquor potassæ, in states of the system not so well defined. To these a long catalogue of drugs might be added, which have acquired reputation in the hands of different practitioners; coltsfoot in Dr. Cullen's, the mu-

* [The various mineral waters have been recommended; but in the opinion of Dr. Cullen with little advantage. They do good, he thinks, by the agency of the water alone: because all kinds of mineral waters are equally useful. Mercury and antimony Dr. Cullen does not approve of; and he thinks, as observed above, that he has been more successful with the coltsfoot than with any other remedy. With the cicuta he has also sometimes succeeded. The bark has the recommendation of Fordyce and Fothergill. It is to be given in cases of debility with a weak pulse; and he thinks it acts as a stimulant. In the strumous ophthalmia he states that it has been very effectual. Fothergill gave in union with it small doses of calomel: salivation must be avoided cautiously. To obtain the good effects of the bark, pure air, proper diet, and exercise, should be conjoined with it. In order that the cold bath should be useful, it should be followed by a glow upon the skin, cheerfulness, and a good appetite. Chilliness and drowsiness shew that it is improper. The warm bath, in these cases, will answer a better purpose: twenty or thirty minutes will be sufficient to continue it. Frictions with flannel, the flesh brush, champing or beating the skin with the hand may also be united with good effect. The mineral tonics, iron and its various preparations, the ferrum ammoniatum, the subcarbonate, the muriated solution, the vinum chalybeatum, are all valuable. The bowels should be kept open during their use, with small doses of rhubarb and calomel. Iron will be found to lie better on the stomach than any other tonic; and it may be given in the form of mineral water, artificially made by dissolving three or four grains of the sulphate in a pint of Seltzer water.]

riate of baryta in Dr. Crawford's,* hemlock in Dr. Storck's, &c.; but they are now almost discarded from common use.†

It remains only that I advert briefly to the treatment of that characteristic form of scrofula, to which the term

* [The muriate of baryta is given in the dose of from three to ten drops : if increased much, sickness, palsy, and tremors, are the result. A solution of the carbonate of lime in muriatic acid, (10 drops thrice a day) has been useful. It has lately, however, failed.

Hemlock, to secure its good effects, should be pushed so far as to produce giddiness or sickness at the stomach. Iodine has been also lately prescribed in scrofula, with benefit. The formula and mode of prescription are given under the head of bronchocele. Carbonate of soda, burnt sponge, and potash are all also advised. Arsenic given internally, is said to be valuable in scrofulous ulcers. The use of red precipitate ointment as a dressing, sprinkling them with burnt alum and verdigris, is useful : also solutions of the muriate of mercury, nitrate of silver, sulphate of zinc, have a good effect.

The last is particularly praised, as effecting a union of the sides of abscesses, by injecting it into them, adhesion being produced without any return of the complaint. Vinegar and water, a weak solution of acetate of lead, the same united with the decoction of oak bark, the recent leaves of the wood sorrel bruised, cold water, lime water, sea water, solutions of alum, of cuprum vitriolatum, of opium, of nitrate of copper, subborate of soda, (℥ss. to ℥i. of Turner's or simple cerate,) lint dipped in lemon juice, have been found useful as dressings to scrofulous ulcers. The preparations either of mercury or copper, in the opinion of Dr. Cullen, make them spread more. Moderate pressure with adhesive plaster, so applied as to draw the sides of the sore together, and constantly wetting the part with cold water ; or a powder composed of five parts of cerussa acetata, and the sixth of burnt alum, applied by dry lint over the sore ; a compress, wet with cold water, afterwards, and well secured by pressure, and when the sore is irritable, solutions of opium, a carrot or a hemlock poultice, and carbonated water, are recommended.]

† [Dr. Physick, of this city, in all those cases of scrofulous inflammation which threaten suppuration, as in the hip disease, and in the scrofulous disease of the vertebræ, advises continued, free, and daily purging, with the lowest diet, almost bread and water, avoiding all stimuli, and with the most decidedly beneficial effect.]

King's evil is specifically appropriated, and in which the lymphatic glands of the neck become enlarged, with or without supervening inflammation. Besides the general measures already recommended, and which of course are equally serviceable in this as in every other variety of scrofula, advantage has been derived, where the tumours are indolent, from stimulating or *discutient* remedies, such as lotions and poultices made of sea water, sea air, blisters, mercurial plasters, 'camphorated and ammoniated oils, soap plasters, ammoniac, hemlock applied in the form of a plaster, leeches, tartar emetic ointment, so as to produce pustules,' and friction. 'Sarsaparilla combined with soda, Peruvian bark and soda, and some preparation of steel are recommended as the best remedies.' When the tumour has advanced so as to form an abscess, and the skin so far destroyed as to leave an open sore, the case is purely surgical; and to the writers in surgery I refer, who abound in directions for the treatment of scrofulous ulcers.

CHAP. II.

RICKETS.

Literary History of the Disease—Symptoms of Rickets—Its supposed Causes—Its Dependence on bad Nursing—Pathology—Treatment.

IT is a singular circumstance, that a disease arising, as we have reason to believe, from causes which must have operated in all ages and countries, should not have attracted attention until a very recent period. That it must have existed previously can hardly be doubted; and we are reduced therefore to the alternative of either imputing great negligence to the early observers in not having noticed it, or bad pathology in having confounded it with scrofula. The first account which we have of rickets was drawn up by Glisson, in conjunction with two other English physicians, in 1650, and it is both copious and accurate. Their inquiries tended to prove that the disease first appeared in the western counties of England about the year 1620, whence it spread over the whole of Europe. A long controversy succeeded on the question of its modern origin. Zeviani and De Haen attempted to trace it in the writings of Hippocrates, but failed.

Rickets is, comparatively speaking, a rare disease. We

meet with but few deformed persons in the streets, and there can, I believe, be little doubt that it is now much less frequent than when it first attracted the notice of English physicians. A very short description of it therefore will suffice on the present occasion.

Rickets never appears in children at birth, and very rarely indeed before the ninth month, or after the second year. The advances of the disease are gradual, and at first hardly perceptible. One of the earliest symptoms is an unnatural softness and flaccidity of the flesh. The body emaciates, although the appetite be good, and food perhaps be taken in sufficient quantity. The cheeks are wan and sallow; the abdomen protuberant, 'and afterwards hard and tense;' the stools 'frequent and' unhealthy in their aspect; the urine turbid. Dentition goes on slowly; the teeth which appear are unsound, and speedily become loose and carious. The process of ossification is peculiarly imperfect, and this leads to many of the most characteristic features of the complaint. The fontanelles and sutures are more open than is usual with healthy children of the same age. The head appears large with respect to the body, and the forehead prominent. The ribs flatten at their sides, and the sternum projects into a ridge. The epiphyses of the long bones become spungy, and the joints therefore appear swelled. This is particularly manifest in the wrists, ankles, and knees. If the child had begun to walk, he daily becomes more feeble on his legs; he waddles, and speedily returns to his nurse's arms. As the disease advances the bones are rendered soft, and being unable to resist the weight of the body, or of the muscles inserted into them, are strangely and frightfully distorted. The spine particularly suffers. The dorsal vertebræ are forced out of their places by the weight of the head, and the child becomes hump-backed.

It is frequently remarked, that the evolution of the mental faculties does not correspond with this *stagnation* of the assimilating functions. In many cases, the child learns to talk with surprising rapidity, and enjoys an acuteness of intellect much beyond his age. 'The senses are uncommonly acute; and the eyes particularly have uncommon brilliancy.' The same thing is equally observable in *scrofulous* cases. The phenomenon is not, however, of invariable occurrence. In that highest grade of rickets, which occurs in some of the valleys of the Alps and Pyrenees, and to which the term CRETINISM has been applied, the mind becomes completely imbecile and fatuous.

It is seldom that rickets proves fatal. Usually after the lapse of two or three years the constitution acquires sufficient strength to put a check to its further advances, and at length the general health is thoroughly re-established. If the distortion of the limbs had not proceeded very far, it will often be remedied in after-life in proportion as the bones lengthen; and it is surprising to see how much nature will sometimes effect in such cases. But where the distortion has been very great, particularly, as Glisson remarks, if the child passes his fifth year without any decided symptoms of improvement, he will continue a miserable object through life. Dissections of those who have died of rickets, do not unfold any peculiar affection of the viscera.

Some very extraordinary opinions have been entertained regarding the origin and pathology of rickets. It was at one time supposed to be allied to syphilis;* and more lately a pathological connexion between scrofula

* [It is pretty certain that children descended from dissipated and profligate parents, are more subject to the rickets than others; in particular, a syphilitic taint is said to produce it in the offspring.]

and rickets has been insisted on, hardly supported, however, on better authority. 'Portal thinks it often originates in scurvy.' From the circumstance of its frequently appearing among the children of the same family, it has been considered as *hereditary*. All the older writers agreed in the belief that the constitution of the parents had much to do with the appearance of rickets in their offspring, and the opinion received the high sanction of Dr. Cullen's authority.

There appears little occasion, however, for accusing the *constitution* of parents. Their inattention and neglect are quite sufficient to account for the phænomena. Pathologists are now, I believe, well satisfied that rickets is the disease of bad nursing. The child is kept on a bed instead of being tossed about in the arms. It is confined to a close ill-ventilated small room, instead of ranging at large in an airy one. It is scarcely ever carried into the open air. The child's body is neither washed nor rubbed as it should be. When it has arrived at the eighth or ninth month, it is taken from the breast and crammed with all manner of unwholesome food. That this system of management, persevered in for several months, should end in great constitutional disturbance, can hardly surprise us; and that these are the real efficient causes of rickets will be obvious from this,—that the disease appears only among the lower orders of people who cannot afford the time to nurse their children properly, or among those of an upper rank who are put out to nurse, where the same interest cannot be taken in the welfare of the child as if it were brought up at home.

Various conjectures have been offered as to the proximate cause of rickets. A depraved state of the blood and humours, with a laxity of structure in the solid parts, was the suggestion of the early writers. Dr. Cullen attributed every thing to debility of the digestive organs. A

chemical theory in later times has made the disease depend on deficient formation of the phosphate of lime. The theory of constitutional diseases is necessarily obscure, and nothing appears to be gained by the display of pathological learning which has been made in the case of rickets.* Every function of the system languishes. Digestion, assimilation, nutrition, absorption, are equally impaired; and as the whole system is in fault, from causes which operate widely, so must the cure be attempted by measures of general application.†

Strict attention to regimen is above all things to be insisted on. Daily washing, cool and dry, fresh and country air, exercise suited to the age of the patient, and either breast milk or a nutritious unirritating diet, 'and a moderate quantity of wine,' are to be rigorously enforced. 'If the patient is poor, and cannot remove, he must be placed in the highest part of the house.' If the system be not exceedingly reduced, cold bathing during the summer months, and tepid bathing in the winter, will conduce essentially to recovery. Frictions 'with the flesh brush or the hand' are of some use. Bandages I believe are altogether ineffectual. 'The bed should be hard, of

* [The mesenteric glands and the glands of the bronchiæ are found enlarged and in a state of suppuration, as also the lymphatic glands generally.]

† [The prognosis in this disease is always unfavorable. The danger to life is in proportion to the number of bones affected, the more or less speedy progress of the disease and the age.‡ Young children are more liable to die of it, than those which are older. If the thorax be compressed, the patient often dies from the effect of the disease upon the lungs. Measles, small pox, and the other infantile diseases, sometimes change the habit, and cure the disease: the prognosis is therefore more favourable if they have not passed through them.]

‡ Boyer on the Bones, p. 193.

hair or of leaves : the patient should be laid on his back, and when he sits up, it should not be on a soft chair.'

Tonic medicines, in moderate quantities and not too long continued, may be exhibited with some advantage. Steel wine is a favourite and useful domestic remedy. A powder containing the carbonate of iron and columbo,

R. Ferri. Subcarbon.
Calumb. pulv. a. gr. v.
f. pulv. capt. bis die.

Or the tonic electuary may be substituted.

R. Ferr. Subcarbonat. ℥iii.
Syrup. aurant. ℥i.
Pulv. cinnam. compos. ℥i.
M. f. elect. capt. ℥i. bis. die.

Cascarilla and bark, with acid, have been serviceable in many cases. An occasional dose of rhubarb or of scammony with calomel, prevents the accumulation of sordes in the stomach and bowels, promotes digestion, and thus tends materially to invigorate the general system. In slighter cases it will be sufficient to direct, along with the steel wine and daily cold washing, ten grains of hydrarg. cum cretâ, to be given every night at bedtime.*

* [The nurse, if the child still suck, should be healthy, and her milk fresh, and if he be weaned, well fermented bread, and animal food simply roasted, should form his diet. Exercise should be taken not to fatigue the patient; riding in a carriage and sailing, will be particularly useful.† If it appear that the disease originated in scrofula, or syphilis, then the treatment appropriate to these diseases is necessary. Mercurials in the latter case should be gentle and combined with tonics; salivation should be avoided. Sometimes the patient is in great pain, and shrieks out; then opiates should be given. If the patient has worms,

† Boyer, p. 195.

then the anthelmintics, selecting those of a strengthening character, should be given, as iron and bitters. Machines of all kinds to support the legs are pernicious, because they prevent exercise, and thus increase the debility, the principal cause of the disease. They may serve to correct bad postures in children, but they cannot do any good in permanent deformity from rickets.* The phosphate of lime and of soda, in equal parts, have been prescribed for rickets, in the dose of ℞i. ter. die. and it is said with good effects.]

* Boyer on the Bones

CHAP. III.

SCURVY.

Symptoms of Scurvy—Causes—Pathological Speculations on the Nature of Scurvy—Treatment—Influence of Antiscorbutics.

A VARIETY of cutaneous eruptions, supposed to be dependent on a morbid condition of the blood, are familiarly called *scorbutic*; but in strict nosological language, the term *scurvy* is appropriated to a disease seldom met with except among seamen. It has been designated as one of the great *sea endemics*, and has proved, even up to a late period, the destruction of many a fleet.* Of a disease which I have never seen and can hardly expect to see, I would willingly omit the consideration; but to complete the plan of the work I shall venture on a very brief sketch of its symptoms, causes, and treatment, abstracted from the essay of most repute on this subject.†

The scurvy comes on gradually with lassitude, disinclination to motion, and difficulty of breathing on slight

* To form an idea of the ravages which this disease is capable of producing, the student may consult the interesting picture of the sufferings of Lord Anson's crew, in the "Account of his Voyage round the World in 1743," one of the most elegant narratives in the English language.

† Treatise on the Scurvy. By Dr. James Lind. 1772.

exertion. The face assumes a pale or yellowish hue. The gums swell and bleed upon the slightest friction. They appear soft, spongy, and sometimes livid. The breath is offensive. The skin is dry and rough, or sometimes smooth and shining. It will generally be found covered with livid spots, which coalesce into large blotches (particularly about the legs and thighs,) and obviously arise from the effusion of blood. The legs swell, and ultimately the whole body becomes œdematous. The patient complains of a pain in all his bones, with tightness and oppression about the chest.

Any sore which may happen to be on the body acquires a peculiar character, which is correctly denominated *scorbutic*. It discharges a fœtid or bloody sanies. The base of the sore is covered with sloughs. Its edges are livid and lined with a soft bloody fungus that increases rapidly.

In what has been called the second or aggravated stage of the complaint, the patient loses all use of his limbs; the tendons in the hams are contracted, with swelling and pain of the knee and other joints. General emaciation ensues, with a tendency to syncope on the slightest exertion. Hæmorrhages break forth from the nose, ears, and bladder. Diarrhœa supervenes, and the stools are offensive and bloody. The patient either dies dropsical, or exhausted by some sudden effort.*

Very ample experience has proved that scurvy arises

* [On dissection after death, the blood is found to be dissolved; the lungs black, and their texture much weakened; the epiphyses separated from the ends of the bones; the cartilages from the ribs; the cicatrices of old sores absorbed; and the callus of old fractures removed, so as to place them in the same situation as they were when they were first broken. The cavities of the thorax and abdomen contain the same serous fluid.†]

from deficiency of proper nutriment, 'which may be either of an animal or vegetable nature. Several cases are related in which the patients lived entirely on tea and bread, and took the real scurvy.'* It occurs to sailors when living on salt provisions, more especially such as have been long kept, and which, therefore, contain very little nourishing matter. All observations tend further to prove, that the disposition to the disease is greatly augmented by neglect of cleanliness, imperfect ventilation, want of proper exercise, and a cold damp atmosphere.

The whole train of symptoms manifestly points out extreme feebleness of the powers of life, as the leading principle in the pathology of scurvy. Attempts have been made, however, to define more accurately the *seat* of the disease. Dr. Lind† is of opinion that scurvy consists mainly in a weakened and relaxed state of the *solids*. Dr. Cullen, on the other hand, imagines that a putrescent state of the *blood* is the true proximate cause of the disease, and he believes this to arise altogether from the introduction of an unusual quantity of salt into the body. How far the latter opinion is correct it is scarcely necessary to inquire, and hardly possible to determine, for we have no authentic accounts of the disease appearing, where salt provisions could fairly be considered as the *sole* agents in its production. Nor is it consistent with sound pathology to weigh the respective merits of those theories which ascribe scurvy exclusively to laxity of the solids or putrescency of the fluids. It is abundantly obvious that both are affected, and that every function and structure of the body participates in the general weakness.

Whatever difficulties may be experienced in determining the theory of scurvy, few points in medicine are less susceptible of dispute than its treatment. In fact, scarcely

* Medic. Transact. Lond.

† Treatise on Scurvy, page 230.

any thing else is requisite than a return to wholesome diet, particularly to the use of fresh vegetables. For this hardly any thing will compensate.

The great object of navy surgeons is not to cure, so much as to *prevent* the scurvy ; and this is now effected by an admirable system of regulations, in which *diet* and *regimen* are equally looked to. To unfold these is out of the scope of a strictly medical inquiry. It is sufficient to say, that they comprise attention to personal cleanliness, clothing, ventilation, exercise, with the means of avoiding cold and damp. To these may further be added the daily use of what are usually called *antiscorbutics*. Substances of this class have long enjoyed a reputation in the world as *purifiers* or *sweeteners* of the blood, and such a power cannot well be denied to them. Those which the experience of the navy has shown to be most deserving of confidence, are lime-juice, preserved fruits, sugar, infusion of malt, spruce beer, and vinegar. The power of lime-juice in preventing and checking scurvy has been proved by the most ample experience, insomuch that this remedy well deserves to be called a *specific*.

Where the disease has made its appearance, and the true antiscorbutics (fresh vegetable and animal food, or, in their stead, lime-juice) cannot be procured, bark, the mineral acids, and medicines of the alterative kind may be tried ; but the prospect of success from them is small. Scorbutic ulcers are improved by local applications of an astringent and antiseptic nature ; but it is obvious that their cure must equally depend on the employment of the proper *constitutional* means.

CHAP. IV.

HÆMORRHŒA PETECHIALIS.

States of the System in which cutaneous Hæmorrhage takes place—Malignant Fever—Plethora, with Congestions or irregular Distributions of Blood—Exhaustion—Phænomena of chronic cutaneous Hæmorrhage—Prognosis—Treatment.

IN several parts of this work allusion has been made to the occurrence of hæmorrhage from the cutaneous capillaries; and as the pathological doctrines which it involves possess considerable interest, it will be right to bring them before the student in a connected manner. Independent of their more obvious bearings, they will serve to impress upon his mind principles, which, of all others, it appears to me of importance to inculcate; the *constitutional* disturbance present in a greater or less degree, in almost every variety of disease, and the dependence of the same phænomenon upon very opposite states of the general system. I shall first point out the several conditions of the body, in which cutaneous hæmorrhage has been observed to occur, and then detail the phænomena and treatment of that affection to which the terms *hæmorrhæa petechialis*, and *purpura hæmorrhagica*, have been commonly applied.

1. Purple spots on the skin, constituting petechiæ and vibices, are in the first place the result of febrile action, generally of a typhoid or malignant character. They occur sometimes at the very onset, sometimes towards the close of the fever. In the former case they often acquire an undue importance in the eyes of the practitioner, who is apt to overlook the febrile state by which they are accompanied. They are in strict nosological language cases of *petechial fever*; but the terms *purpura contagiosa*, and *purpura maligna*, have been frequently applied to them. Fevers of this class will commonly be found associated with great disturbance of function in the brain and nervous system, upon which, in all probability, the cutaneous hæmorrhage immediately depends. It is hardly necessary to add, that the occurrence of petechiæ in an early stage of fever is a symptom of urgent danger. It denotes either uncommon malignity in the contagion, or a peculiarly depressed and languid state of the body in which the contagion operates. On opening the bodies of those who die of the disease, it will generally be found that the hæmorrhagic tendency displays itself equally in some of the internal organs. I have noticed it in the heart, and mesentery.

2. An eruption of purple spots, in every respect resembling those which occur in fever, is sometimes met with along with marks of plethora; still more decisively in connexion with symptoms denoting *congestion* of blood in some of the great organs of the body, or irregular distributions of blood throughout the body generally. It has been observed, in certain instances, along with and probably depending upon thoracic disease of an obscure kind, marked by dyspnœa and an oppressed pulse, and commonly described as a state of congestion about the heart and lungs. Dr. Bateman* details the particulars

* Practical Synopsis of Cutaneous Diseases, page 111.

of a case that fell under his own observation, in which the disease appeared to arise from an enlargement of the thyroid gland. I observed it, in one instance, succeeding measles.

Again, chronic cutaneous hæmorrhage has frequently been found associated with *abdominal* disease. It has long been known that morbid states of the spleen are attended with different forms of hæmorrhage, and among others with that from the cutaneous capillaries. Cases not unfrequently occur in which purpura is connected with hepatic obstruction (the result of habitual spirit-drinking,) evidenced by the jaundiced hue of the skin and eyes, pain of the side, and dry cough. Some recent observations have led to the belief that purpura occasionally depends on a morbid condition of the villous coat of the intestinal canal. It would be more correct, perhaps, in this and other cases, to consider both the abdominal and cutaneous diseases as *effects* of an ulterior but obscure cause influencing the *whole habit of body*.

3. A disposition to petechiæ appears, in the third place, as a consequence of deficient nourishment, and other most unequivocally debilitating causes. It has been very frequently met with among children who are ill fed and nursed, and among persons of all ages who live in close situations, who enjoy but little exercise in the open air, and are exposed to much fatigue, long watching, and great mental anxiety. It is not uncommon in the last stages of infantile marasmus; and it has been often observed in adults who are left in a state of great exhaustion by any severe or protracted illness, especially dropsy.

4. Cutaneous hæmorrhage, lastly, is in some instances altogether *constitutional*;—that is to say, it depends upon a natural inherent weakness of the circulating system. In such habits of body, attacks of petechiæ are habitual, whereas in all the cases hitherto alluded to they are *acci-*

dental. They then occur on very slight occasions, and not unfrequently without any apparent cause. Errors in diet, unusual fatigue, or exposure to cold, are sufficient to induce them. In aggravated cases the gentlest pressure on the skin will occasion a purple blotch like that which is left after a severe bruise. In constitutions so disposed, the drawing of a tooth is sometimes followed by alarming hæmorrhage. Instances are even on record of death from such a cause.

The first of these states of disease does not require further investigation. The other three constitute the different species of that complaint which has been called hæmorrhœa petechialis.* There is the utmost variety both in the manner in which the hæmorrhage commences and ceases, and in its accompanying symptoms. It sometimes occurs suddenly; but more commonly is preceded for a week or two by great lassitude, faintness, and pain of the limbs. In its progress it is attended with extreme debility and depression of spirits, and a pulse generally feeble. After the disease has continued for some time, the patient becomes sallow, and much emaciated, and a degree of œdema appears in the lower extremities, which gradually extends to other parts. The effusion of blood commonly commences in the legs. The spots are at first of a bright red colour, but soon become purple, and when about to disappear, change to a brown or yellowish hue. The cuticle covering them is smooth, and not sensibly elevated, except in a few rare cases, which Dr. Willan distinguished by the name of *purpura urticans*. They vary in size from the minutest point to that of streaks and large blotches. They are neither itchy nor in any way painful.

* This term was first employed by Dr. Adair in 1789. In former times the disease was known by the name of *petechiæ sine febre*.

Discharges of blood take place at the same time from some of the great mucous surfaces,—from the gums, nostrils, lungs, stomach and bowels, or urethra. These hæmorrhages are often profuse, and not easily restrained. The disease is extremely uncertain in its duration. Where the hæmorrhagic diathesis is constitutional, it may continue to harass the patient, more or less, through life. Where it arises from accidental causes, its severity and termination are in some degree under our own control. When the disease ends fatally, it is often by a copious and sudden discharge of blood from some important organ,—the lungs, the stomach, or the uterus.

In the treatment of hæmorrhœa petechialis, no rule of practice can be laid down which shall be universally applicable. We have improved certainly upon the notions of the older physicians, in admitting that cutaneous hæmorrhage does not necessarily preclude the application of the lancet; but further than this it would be unsafe to go. The idea of treating all, or even the majority of cases of this disease by depleting measures, is hardly less blameable than the blind adherence to astringents and stimulants which characterized the practice of an earlier age. A *constitutional* tendency to ecchymosis is best combated by those tonic means which are of slow operation, but of undoubted efficacy,—I mean pure country air, regular exercise, nourishing food, early hours, and such amusements as withdraw the mind from the cares and fatigues of business or study. The use of the mineral acids, bark, and a moderate allowance of wine, will coincide with the general indication. The same plan of treatment is equally applicable to such *accidental* cases of purpura as arise in debilitated habits, and are accompanied by a weak pulse, a sallow dirty complexion, and a tendency to syncope or œdema. In many of these, stimulant remedies require to be exhibited in full doses.

No theoretical views of laxity or debility, however, are to prevent our having recourse to a different system of management, when the disease occurs under opposite circumstances. If petechiæ appear in persons already enjoying pure air, and suffering no privation of diet; if they are accompanied by a sharp pulse, a white and loaded tongue, occasional chills; and if, at the same time, there are fixed internal pains, cough, dyspnœa, or other symptoms indicating the existence of some local visceral congestion, the administration of tonic medicines will be ineffectual, if not actually injurious. Depleting measures proportioned to the urgency of the symptoms must be promptly resorted to. Blood may be taken from the arm, in the first instance, with safety and advantage. Free purging is well suited to these cases. Calomel and jalap in active doses may be liberally given.

The convalescence will generally prove tedious; for the disease is one which denotes, under all circumstances, very deep and extensive disturbance throughout the whole animal œconomy.*

* The history which I have given of this disease is, with very few alterations, that of Dr. Bateman, who devoted much of his time and attention to this curious subject.

CHAP. V.

DIABETES.

Division into the insipid and saccharine Varieties—Symptoms of the true Diabetes Mellitus—Prognosis—Appearances on Dissection—Causes—Pathological Conjectures concerning the Nature and Seat of Diabetes—Proposed Plans of Treatment—Influence of Drugs on the Secretion of Diabetic Urine.

THIS singular disease has excited a more than common interest among the pathologists of modern times. The original description of it is to be met with in the writings of Aretæus; but though it has been known from so distant a period, few attempts were made until lately to investigate its nature. That they have not been followed by all the success which might be desired, may be attributed in part to the rarity of the complaint; but much curious information has been collected concerning it, and many ingenious conjectures have been thrown out regarding its remote and proximate causes, which may prove useful to the student. These it is my present object to lay before him in a condensed form. The leading symptoms being an increase in the quantity, and an alteration in the quality of the urine, diabetes has usually been

considered as a disease of the kidney ; but this is merely a conjecture, into the merits of which we may hereafter inquire. The phænomena which it presents ought, in the first place, to be studied without reference to any peculiar pathological opinion.

An increased flow of urine accompanies several disorders, especially such as are of a convulsive, or *hysterical* character. These, however, are not included under the head of *diabetes*. Nosologists have confined this term to cases in which the increased flow of urine is *permanent*, and with which are associated constitutional symptoms usually designated by the term *cachexia*. Two species of diabetes have been described, the *insipidus*, and *mellitus* ; and it has long been a question, whether these differ in any *essential* circumstances from each other. Dr. Prout is inclined to believe they do, and recommends, that the term diabetes should in future be restricted to those affections in which the urine is *saccharine*. I shall principally direct my attention to the phænomena of the genuine diabetes mellitus, noticing incidentally the peculiarities of the other variety of the complaint.

Diabetes makes its approach very insidiously. The first symptoms usually complained of are lassitude, weakness, a disposition to sweating on slight exertions, and headache. Sometimes a diseased state of the urine advances to a considerable extent, and subsists for some time, without being accompanied by any strongly marked constitutional disturbance, and occasionally even without attracting the notice of the patient. The most striking symptom of the disease is an increase in the *quantity* of the urine. This varies very much in different cases, and is for the most part a good index of the violence of the disease. The largest quantity which I have seen recorded as having been passed in twenty-four hours is thirty-two pints ; and it is no uncommon thing to find from twenty

to thirty pints discharged daily for weeks, or even months together. The average quantity may perhaps be stated at twelve or fifteen pints; and it is a remarkable fact, that in many instances it exceeds the whole amount of ingesta, solid and fluid. The secretion of so much urine is almost necessarily attended with a frequent desire to pass it. The patient is generally compelled to rise three or four times in the night for this purpose.

The urine of diabetes is of a pale straw colour. Its smell is commonly faint and peculiar, sometimes resembling sweet whey or milk. Its taste is, with few exceptions, decidedly saccharine, in a greater or less degree.* Even if this should not be perceptible in the first instance, it may often be detected when the urine is concentrated by evaporation. In many cases the saccharine quality of the urine is occasionally suspended; and this happens both spontaneously, and from the influence of medicine. Of the fact, that sugar is secreted by the kidney in this disease, no doubt can be entertained. It is confirmed by the repeated experiments of chemists in all countries. The quantity of sugar formed is in most instances directly proportioned to the degree of *diuresis*, and may always be estimated by the specific gravity of the urine. We are indebted to Dr. Henry, of Manchester, for the following table, showing the quantity of solid extract in a pint of urine of different specific gravities.

* This remarkable quality of diabetic urine was first noticed in 1684, by Dr. Willis.

Specific Gravity of the Urine at 60° compared to Water as 1000.	Quantity of solid Extract in a Wine Pint (in Grains.)	Quantity of solid Extract in a Wine Pint (in Ounces, Drachms, Scruples, and Grains.)			
		oz.	dr.	scr.	grs.
1020	382.4	0	6	1	2
1025	478.4	0	7	2	18
1030	574.4	1	1	1	14
1035	670.4	1	3	0	10
1040	766.4	1	4	2	6
1045	862.4	1	6	1	2
1050	958.4	1	7	2	18
Healthy urine has a specific gravity of 1012, and contains seven parts in 100 of solid matter.					

From this table it appears, that if a patient passes twelve pints of urine in the day, of the specific gravity 1035, he voids in that time above sixteen ounces and a half of solid matter. The quantity, however, is in many cases much greater than this.

Other important symptoms occur in diabetes besides those now specified. The appetite is usually much greater than in health; though digestion is seldom if ever perfect. There is uneasiness therefore in the stomach after meals, with flatulence, acid eructations, and irregular bowels. Thirst is a never-failing source of complaint, and often attracts the notice of the patient before he is sensible of the true nature of his case. The skin is dry, and has a peculiarly rough and parched feel from the total want of perspiration. The gums are often swelled, tender, and red; sometimes ulcerated. The breath has a subacid odour. The tongue is white and foul in the centre, with bright red edges. The mouth is dry and parched, and the taste depraved. The patient will generally be found to complain of some pain or sense of weakness in the loins. Phymosis and excoriations on the penis are fre-

quently, 'and a gleet sometimes' noticed. Besides these, there occur in almost all cases symptoms indicating general weakness or exhaustion—such as swelled legs, emaciation, coldness of the feet, dyspnoea on the slightest exertion, a sense of weight at the epigastrium, with tendency to syncope, general languor, lassitude, and depression of spirits. Early in the disease the pulse is seldom affected; but in its progress hectic fever supervenes, and the pulse becomes frequent, feeble, and irritable.

The duration of diabetes is very variable. An instance is recorded where it ran its course, and proved fatal, in five weeks. On the other hand, it has been known to last for several years, and ultimately to wear out the constitution. The prognosis indeed, under all circumstances, is very unfavourable. A few well-authenticated instances of recovery might be quoted; but they are too rare to redeem the disease from the character of danger which it has so long borne. It has proved fatal in three ways; first and most frequently by the supervention of either acute or chronic inflammation in the chest; secondly, by dropsy, and exhaustion; while in a few cases the patient has been cut off suddenly. The distinction between the insipid and saccharine forms of diabetes to which I formerly adverted, is chiefly of importance with a view to prognosis. The danger is certainly much greater where the saccharine quality of the urine is thoroughly established.

Dissections of those who die of diabetes have been diligently practised; but hitherto they have thrown no light whatever on the nature of the complaint. The lungs are often found diseased. The kidneys in a few cases have exhibited their usual healthy appearances; but commonly they are more or less affected. Their texture is more flaccid than natural, or they are turgid with blood, though seldom enlarged in size. The cellular membrane

surrounding the kidneys, that of the abdominal parietes, and of other parts of the body, is frequently found loaded with a gelatinous substance. ‘The mesenteric glands are enlarged; the bladder is distended, and its coats are thickened.’ I have seen the same, in a different form of chronic ailment, lining the inner surface of the bladder; and it appears to be a diseased secretion, occurring generally in worn-out constitutions.

In investigating the pathology of diabetes several curious questions occur. It may be right to remark, previously, that it is a disease observed in all ranks of society. No employment or profession can be stated as particularly liable to, or exempt from it. It is met with in both sexes, and at various ages; but it chiefly prevails among men, and in the middle or advanced periods of life. It would appear to be more frequent ‘in some families than in others,’ and in cold than hot climates. Dyspeptic complaints long continued may perhaps favour the disposition to diabetes; but little or nothing is known regarding its remote or occasional causes. Intemperance, severe evacuations, hard labour, and exposure to cold, have been accused of bringing it on, but I believe without any very adequate reason; ‘strong diuretics and purgatives, turpentine, excess of venery, immoderate use of sulphureous mineral waters, of tea, of honey, of beer, of exercise on horseback, long-continued agues, the depressing passions, also are said to produce it.’

One of the first objects of pathological inquiry is to determine whether the saccharine condition of the urine is a primary feature in the complaint, and if it ever exists independent of an increase in its *quantity*. Dr. Prout* is inclined to the opinion that it does, and that the in-

* Inquiry concerning the deranged Operation of the urinary Organs, page 65.

creased flow of urine is referable to an *irritable* state of the system, which forms part of the disease, and resembles that present in hysteria and other nervous affections. Some of the constitutional symptoms attendant on diabetes are perhaps owing to the vitiated quality of the urine; but the most distressing are doubtless to be referred to that enormous *drainage* from the system, both of fluid and solid matter, which takes place when the disease is severe. Differences of opinion are entertained regarding the origin of the sugar which exists in diabetic urine. Some imagine it to be formed in the stomach, and others in the kidney. Dr. Wollaston has rendered the latter the more probable opinion, by showing (Phil. Trans. 1811,) that sugar does not exist in the blood of diabetic patients whose urine is at the time sweet. Many persons indeed have been inclined to consider the stomach as the *primary* seat of diabetes, and they support the opinion by reference to the thirst and inordinate appetite which attend it. Such symptoms, however, are more probably the result of excessive discharge.

A suggestion has been thrown out, that the functions of the lungs are primarily implicated, and that diabetes consists in imperfect *animalization* of the blood, whereby sugar is formed instead of the true *animal* principles. The abettors of this opinion rely for its support, partly on the fact that diabetes is frequently succeeded by unequivocal affections of the lungs, and partly on the appearance of the blood drawn, which in some cases does not coagulate, and in many can be preserved a long time without putrefaction. Dr. Cullen looked upon diabetes as a disease of the kidney, and some later pathologists have revived the notion. Morbid anatomy does not favour it; and I am disposed to think, that in this theory stress is laid on a single symptom, to the neglect of others which equally tend to illustrate the real nature of the disease. No view

of diabetes which has ever been proposed appears to be so reasonable as that which considers it as depending on general constitutional disturbance, and allied pathologically to dropsy. This indeed is not advancing far in the way of explanation, but it may still be preferable to simpler though less accurate hypotheses.

Where pathology is obscure the principles of treatment are necessarily deficient. To this we may ascribe the very opposite plans which have been devised for the cure of diabetes. The practice in this disorder, in fact, is almost purely empirical; and, considering its great fatality, little else is requisite than a mere enumeration of the several kinds of treatment which have been proposed, and a brief notice of the influence which medicine exerts upon it.

Astringent remedies were early resorted to, more particularly lime water, alum whey, kino, and catechu. On the supposition of diabetes being mainly a disease of debility, bark, chalybeates, and the mineral acids, have been extensively used. In 1776 Dr. Rollo suggested the employment of animal diet, and experience has shown that it possesses an undoubted power of diminishing the *quantity* of urine. It will be found, however, in practice, that this plan of treatment can never be rigidly enforced.*

* [The success of animal diet does not rest on the authority of Dr. Rollo alone: Sydenham also advised it; "Let the patient eat food of easy digestion, such as, veal, mutton and the like, and abstain from all sorts of fruit and garden stuffs; and at his meals, drink Spanish wine." Like all other plans in this disease, it will sometimes succeed to a miracle, at others completely fail.—Fat meat has succeeded more particularly well in this disease. From some interesting experiments related by Rollo, it appears that different articles have different degrees of power in aggravating it. Though they were taken from only one case, they may notwithstanding be useful. The different articles are set down in the following list in the order of their danger; the most noxious being placed first. Bread, both fermented and unfermented, potatoes, onions, leeks,

Blood-letting has been tried by some practitioners, and has proved serviceable in one or two cases; but it cannot be recommended for general adoption.* Opium is the

radishes, turnips, spinage, carrots, peas, broccoli and cauliflower, all rendered the urine saccharine. Parsnips were eaten with impunity: all kinds of fruit were hurtful; apples re-produced the disease.

Porter, of all drinks, was the most hurtful: spirits and wines were also pernicious. Though vegetable food is generally bad in this disease, yet so various are the different systems, that it sometimes has expedited recovery.

Dr. Rollo used the animal diet in combination with the hepatised ammonia, which was made by passing a stream of sulphurated hydrogen through a solution of carbonate of ammonia, and giving three or four drops to an adult, three or four times a day; it lessens the pulse, and produces sickness at stomach. Nitric acid, taken freely in water, and a diet of animal food, with porter, cured a case under the care of Mr. Earnest.]

* [Mr. Watt upon this subject is very decided, and though he did not succeed in curing many cases, the results are of the most interesting character. He bled, though the pulse was slow, feeble and irregular, the strength and spirits almost gone, the lower extremities cold, lifeless, and cedematous to the haunches, the blood very dark, the crassamentum as black as pitch and devoid of tenacity, and repeated the operation to six times with the most decided advantage. The blood in the first case changed its qualities after the fourth bleeding, and became dense and sily on the top, increasing in firmness at every operation, and the patient growing better, more lively, the intellect brighter, the veins more turgid, and the perspiration more considerable. The urine, however, did not abate till after the fifth bleeding, when the patient improved in every respect.

In the second case, animal diet at first did harm, and though the symptoms resembled pretty much the one just stated, venesection was equally useful; it rendered the animal diet more agreeable and improved the symptoms in every respect.

Bleeding, blisters over the kidneys, and a spare diet, with a salivation by calomel, cured a third. Mr. Watt thought that in this case, the patient was cured by abstinence, the salivation rendering the mouth so sore that the patient could not eat. This plan has been since tried with the most marked success. It cured an old man of 72. In another case the

latest, and now most esteemed remedy ; but upon this, and upon all other remedies for the cure of diabetes, one remark may suffice.* Many drugs exert a *certain* power over the disease, which after a time fails.† A blister to the loins will occasionally check, in a remarkable manner, the inordinate secretion of urine. Uva ursi, alum,‡ and

effect was so evident, that the patient requested a repetition of the bleeding more frequently than was prudent.]§

* [In the practice of Dr. Baillie, considerable doses of opium, combined with rhubarb or some other bitter, succeeded best : thus, fifty drops of laudanum combined with columbo or rhubarb tea, given 3 or 4 times a day, often cured it. It should be continued for some months after the patient is well, as the disease often returns.]

† [Dr. Sharkey succeeded with the phosphate of soda, given in the dose of ʒi. thrice a day and a vegetable diet. The phosphoric acid (10 or twenty drops thrice a day in water) was prescribed by Dr. Latham, with success. Mr. Venables has lately used the phosphate of iron with advantage (one or two grains increased gradually to ʒi. or ʒss. thrice a day) in combination with orange peel. It is made by precipitating a solution of the sulphate of iron with the phosphate of soda.

Emetics have been given to relieve the acid eructations, and uneasiness at the pit of the stomach, loathing, and with the best effect on the disease. Richter cured a case attended with a small quick pulse, with uneasiness at the pit of the stomach, by one emetic. Tartar emetic and valerian cured another in the space of 10 days. In another case, ipecacuanha produced vomiting and suspended the discharge for 24 hours. In Mr. Watt's cases, vomiting relieved the patient very much.]

‡ [Alum whey, made by boiling a dram of alum in a pint of milk has been successful in lessening the discharge. Dr. Brocklesby cured a case by giving it for 6 weeks.|| Milk appears to be powerful in this disease : united with iron it has cured several cases ; a diet of milk with opium at night, the same diet with astringents, also has cured several cases. Lime water cured three cases quoted by Watt.¶]

Dr. Scott cured the only two cases he met with in India by mercury. One of them relapsed : nitric acid then did good. Dr. Storer also succeeded with mercury.]**

§ Med. Transact. of the London College of Physicians.

|| Watt, p. 50.

¶ Ibid. p. 51.

** Girdlestone, p. 75—76.

opium,* will do the same in other cases ; but the relief they afford is temporary ; and when the influence of the drug goes off, we are still as far as ever from the cure of the complaint.† Pathological considerations lead to a doubt, whether a remedy for diabetes, in its confirmed stage, can ever reasonably be expected.

* [Dr. Latham found benefit in one case from a tea-spoonful of equal parts of compound spirit of ammonia and pargoric, taken occasionally in a glass of water.

A patient has been much benefited by sleeping in a room newly painted, whether the turpentine or the lead of the paint, was the active ingredient in this case is difficult to say. Camphor, nearly allied to turpentine in its qualities, has cured several cases.‡ Rosin given internally failed with Dr. Darwin.§ Perspiration produced by medicine or exercise has a favourable effect ; of this Dr. Latham and Dr. Marsh give several cases in illustration. Labour and warm clothing produced a favourable effect in a case related by Dr. Carter. Opium succeeded in the hands of Dr. Darwin by exciting a perspiration. The vapour bath, emetics, hepatized ammonia, antimonials and the warm bath, succeed in the same way.]

† [Colchicum is mentioned as a valuable remedy.]

‡ Dunc. Ann. p. 343. 1796.

§ Rollo, p. 368.

CHAP. VI.

PATHOLOGY OF DROPSY

Intricacies of this Inquiry—Common Divisions of Dropsy—Pathological Divisions—Local Dropsies—Acute or inflammatory Dropsy—Dropsy of Weakness—Evidences of the Hydropic Diathesis—Appearances on Dissection—Thoracic and Abdominal Dropsy—Prognosis—Principles of Treatment—Influence of Blood-letting—Purgatives—Diuretics—Tonics—Of the surgical Means of Relief in Dropsy.

FEW topics in medicine have received more attention from systematic writers than dropsical effusion. The frequency of the complaint, the very striking influence exerted upon it by medicine, and the marked character of the symptoms, have contributed to obtain for it, in all ages, this share of attention. The subject being one of great extent and difficulty, it is not surprising that the notions concerning it, entertained by the older writers, should have been imperfect. Even with all the assistance which the labours of modern pathologists have afforded, it still continues obscure and incomplete. Their improvements, however, are undoubted ; and that the student should be able to appreciate their value, and at the same time form for himself correct notions of the nature

of dropsy, he must, in the first instance, take a general survey of its *pathology*. Without this, his views of the disease must necessarily be limited and confused; while, by its help, the details of symptoms, causes, and treatment in each of the principal varieties of dropsy are easily comprehended. The *nosological* divisions of dropsies are very necessary in practice, and will hereafter be adverted to, but there are certain *pathological* distinctions among them, which are at least equally important. With these I shall commence; and to explain them shall, in the first place, direct the attention of the reader to the general character of the *symptoms* in dropsy, and, secondly, to that of the *appearances after death*.

1. The first distinction to be made among dropsies is, into such as are connected with general constitutional disturbance, and such as are strictly *local* (employing, of course, that term in the qualified sense in which it can alone be properly received in medical disquisitions.) Of the latter there are three principal forms,—chronic hydrocephalus, ovarian dropsy, and hydrocele. The two former have been already treated of. The latter is exclusively surgical. To this class also belong the cases of accidental anasarca, or *œdema*; but as these are very rare, and unimportant in practice, they may equally be excluded from our present consideration.

2. When dropsy exists along with constitutional derangement, it is reasonable to suppose that all the functions of the body participate, and doubtless this is a correct view of the case; but a notion has always prevailed, that the absorbent and sanguiferous systems are those which principally suffer. In former times, *diminished absorption* was viewed by pathologists as the leading feature of the complaint; and in the eyes of practitioners, the great principle of treatment was to stimulate the ab-

sorbents. More recently the circulating system has chiefly been looked to, and *increased exhalation* has been held up as the proximate cause of dropsy. We are too imperfectly acquainted with the physiology of the *absorbent* system, to determine what share it has in the production of dropsy; but the dependence of this disease on disturbance of the *sanguiferous* system is obvious, and of the first importance in practice. Dropsy is observed in two very opposite conditions of the vascular apparatus; of which the one is, increased action either of the heart or of the arterial capillaries, or both; or the other, feebleness of the arterial action, with sluggishness in the venous circulation.

3. Dropsy attended with increased vascular action is very common, and is either general or local, according as the heart or the arterial branches are affected. The morbid action of vessels which gives rise to it, may be either actual *inflammation*, or high *irritation*, or *congestion*. Hydrocele and hydrocephalus may be taken as instances of local dropsies of this kind. Ascites sometimes accompanies chronic inflammation of the peritonæum, and hydrothorax that of the pleura. Various examples might be offered of *general* dropsy, arising from, or intimately connected with, this state of the circulation. The most common are anasarca from exposure to cold, from the excessive use of spirituous liquors, from oppressed uterine functions (amenorrhœa,) and from scarlet fever. In all these cases, the disturbance of the heart's action is functional, and admits of a permanent cure. The principle, however, is perhaps most incontestably displayed in the disposition to dropsy, which comes on in the course of structural diseases of the heart, when that organ labours exceedingly in its functions.

To this species of dropsy pathologists have given the

name of acute, inflammatory, or *plethoric*.* We might call it, with some propriety, *arterial*, as it is not necessarily accompanied with plethora or with feverish symptoms, and very seldom runs a rapid course. In this kind of dropsy the pulse is for the most part full and active, but sometimes hard, wiry, and incompressible. There is commonly cough and headache, aggravated by a full inspiration. Dr. Blackall† has attached much importance to the coagulability of the urine in these cases on exposure to heat, a phenomenon very frequently but not universally observed. The exciting cause, where it can be ascertained, and the previous history of symptoms, assist materially in establishing the diagnosis. It occurs, for the most part, at an early period of life, and may often be traced to cold. Its attack is commonly sudden.

4. Dropsy is occasionally met with in a very different state of the circulating system;—a state of relaxation or atony of the exhalant vessels. This form of dropsical effusion corresponds with that colliquative sweating, which is the frequent consequence of great or repeated loss of blood. It is very often to be observed, therefore, in the latter stages of chlorosis, diabetes, consumption, and hectic fevers of all kinds. Atonic dropsy, occasionally follows flooding, great and sudden abstractions of blood by the lancet, and protracted fevers. It is sometimes brought on in the lower ranks of life by the want of proper nourishment, and in all persons it may be induced by a long-continued state of disordered stomach and imperfect digestion. Dropsy from relaxation was a favourite doctrine with the early schools of medicine. They admitted, in-

* This term was introduced about thirty years ago by Dr. Grapengiesser, who appears to have the merit of having first accurately described such a form of dropsy.

† See "Observations on the Nature and Cure of Dropsies." By Dr. Blackall, of Exeter. London, 1813.

deed, of no other species, and were at any rate unaware that the doctrine of atony and debility applies only to a small proportion of the cases of genuine idiopathic dropsy which are met with in common practice. Dropsies of this kind are attended with a weak and languid pulse, night-sweats, cold extremities, and in many cases, a strong disposition to erysipelas, petechiæ, and gangrene. They chiefly occur in elderly persons whose constitutions are worn out. They commence imperceptibly, and are not traceable to any obvious cause.

5. There is still, however, something about dropsy which is not thoroughly understood. A high degree of arterial action may exist, or the powers of life may be excessively reduced, without dropsy supervening. As in certain circumstances there is a peculiar tendency to hæmorrhage, so in others there is a tendency to dropsy. In what the *hydropic diathesis* consists, it is impossible to define with any accuracy. Possibly it may depend on some condition of the nerves; or on some want of *consent* between the functions of the capillaries, and those of the great arterial and venous trunks. To pursue these speculations, however, would be useless. It will be more advisable to direct the attention of the student to the *symptoms* of this hydropic disposition, which are few in number, but very distinct. They are,—diminished secretion of urine, thirst, œdema of the feet and ancles, and a peculiar expression of countenance, to which the term *leucophlegmatic* has been applied.

Having now pointed out the divisions of dropsy founded on the consideration of symptoms, I proceed to such as may be referred to the diversity of appearances observed on dissection.

Two sets of morbid appearances present themselves in those who die dropsical, the one thoracic, the other abdominal; and this furnishes a most useful distinction in

practice. In the thorax we meet with enlargements of the heart, diseased valves, adhesions of the heart to the pericardium, ossification of arteries, inflammation of the internal coat of the great arterial trunks, aneurism of the aorta,—tubercles and vomicæ in the lungs,—malformations of the chest generally. When dropsy occurs connected with this state of local disease, it commonly assumes the form of hydrothorax, hydropericardium, anasarca, or their combinations.

In many cases, the thoracic viscera are found without the smallest trace of disease; instead of which we meet with marks of inflammation (acute or chronic) of the peritonæum,—adhesion, thickening, or tuberculated accretion of that membrane;—or we find enlargement and disorganization of the solid viscera; tuberculated liver, swelled spleen, diseased mesenteric glands;—the stomach scirrhus, tumours attached to the omentum, thickened and ulcerated intestines. When dropsy occurs complicated with any of these varieties of abdominal disease, it appears in the form of ascites, or of anasarca and ascites combined. Abdominal dropsy is much more common than thoracic, in the proportion of about six to one.

Sometimes we have occasion to notice thoracic and abdominal appearances present in the same subject; and lastly, instances are not wanting of dropsy connected with mere *functional* disturbance of some organ proving fatal, and leaving behind it no trace of morbid structure.

The prognosis in dropsy is always unfavourable, and for many reasons. It is, as we have seen, connected with states of thoracic and abdominal disorganization, over which we have no control. It indicates great *severity* of disease, and shows that the *whole system* is deeply involved in it. It is often the strongest mark of a worn-out constitution, and of failure of the *vis vitæ*.

In all forms of dropsy there is a remarkable liability to relapse.

The duration of the disease varies with many circumstances which it is impossible to enumerate, but which have all an important influence. There is an acute form of dropsy which has proved fatal in a few weeks, and there are instances on record of persons living for a long series of years labouring under a greater or less degree of it. Ascites is perhaps the most generally fatal of all the forms of dropsy, and certainly that over which medicine exerts the least power. It is hardly necessary to say, how much, in the successful issue of a dropsical case, depends upon bringing it early under medical treatment, before the foundations of health are sapped, and the disease advanced to that point where, from being one of function, it becomes complicated with structural derangement.

The remarks now offered have been intended to show that the pathology of dropsy assimilates itself very closely with that of other diseases. No sufficient grounds have been advanced for connecting it peculiarly (as the old pathologists did) with the absorbent system, or with a state of morbid tenuity of blood.

In the treatment of dropsy we are to aim, in the first place, at restoring a due state of the circulating system. Secondly, where this cannot be done, or while the measures for effecting it are in operation, we are to promote the temporary absorption of the effused fluid. Thirdly, where the powers of the system are inadequate either to the one or the other, recourse must be had, when practicable, to surgical aid.

1. The means of relief calculated to attain the first object vary of course with the kind of dropsy present. In the acute, plethoric, or arterial dropsy, we are to lower the tone of the arterial system, and to lessen the impetus

of the circulating fluids upon the exhalent capillaries. For this purpose, it is sometimes necessary to have recourse to blood-letting, or to local depletion by cupping, or leeches. At other times the object may equally be gained by brisk purgatives, nitre, cream of tartar, and other relaxing saline medicines, by antimony, or colchicum. The utility of blood-letting in certain forms of dropsy has been established on the clearest evidence; but it is right to add, that so powerful a remedy is not *lightly* to be resorted to. In all cases of disease not accompanied by fever or inflammation, great caution is required in the management of the lancet. In the case of dropsy, this is peculiarly necessary; first, on account of the debility which, if carried too far, blood-letting produces; and secondly, from its being so often associated with that *passive* enlargement of the heart, which does *not* admit of the detraction of blood. Bleeding in dropsy should never be pushed therefore to such an extent as to endanger the occurrence of syncope.

In dropsy from relaxation, or glandular obstruction, the indication of cure is to support the tone of the system, and to rouse the action of the absorbents. Among the *tonic* medicines most serviceable in dropsy, are the bitter infusions, the aromatic confection, camphor mixture, bark, steel, and wine. Of the *deobstruent* medicines the most powerful are mercury, squill, and ammoniacum.

2. With the second intention (that of promoting the temporary absorption of effused fluid,) recourse is had to medicines which determine to the bowels and kidneys. The cathartics most useful in this view are those called *hydragogue*, in which class are ranked jalap, cream of tartar, elaterium, and gamboge. It is a remarkable fact, that in almost every case of general dropsy, active purging will do something towards the relief of the patient. It appears in a peculiar manner to excite the absorbent

system to action. Of the diuretic medicines employed in dropsy, some are weakening, as digitalis, the acetate of potash, nitre, and colchicum. Others are stimulating, such as the spiritus ætheris nitrosi, the oil of turpentine, squill, and juniper berries. The former are chiefly serviceable in thoracic, the latter in abdominal dropsy.

Great advantages are derived from combining these remedies. Where blood-letting is indicated, digitalis and occasional purging are applicable. The best effects have followed the union of digitalis or squills with mercury. There is probably no plan of treatment adapted to such a variety of cases as this. Digitalis may often be given with perfect propriety in combination with aromatics and tonics. Lastly, the powers of diuretic medicines are much heightened by mixture.

3. The surgical means of relief in dropsy are tapping and scarifications. Of their value, I shall have a fitter opportunity to speak in the next chapter, when treating of the three principal varieties of dropsical effusion.

CHAP. VII.

DROPSY OF PARTICULAR CAVITIES.

Ascites — Its Symptoms — Causes — Peculiarities in its Treatment — Diagnosis of Hydrothorax — Symptoms of Hydropericardium — Remedies peculiarly applicable to Thoracic Dropsy — Phænomena of Anasarca — Its Causes — Peculiarities in its Treatment.

HAVING explained in the last chapter the pathology of dropsical effusion, I proceed to offer a few observations on the chief varieties of general dropsy which meet us in practice. I shall principally direct my attention to the *symptoms* of these diseases, and to the selection of remedies for their removal.

1. ASCITES, or dropsy of the peritonæal cavity. This form of dropsy is readily known by the concurrence of the common symptoms marking the hydropic diathesis with swelling and fluctuation of the belly. Simple as these characters appear, there are occasions in which the diagnosis is difficult. Ascites has been mistaken for dropsical, or otherwise diseased ovarium; and physicians have occasionally erred in their attempts to distinguish it from the tumour of pregnancy. Ascites in a few cases occurs alone, but more frequently it is associated with a degree of anasarca, and sometimes also with hydrothorax. The

quantity of water collected in the belly is often enormous, amounting in some instances to upwards of a hundred pints. It is curious to observe how little inconvenience this occasions to the viscera among which it floats. The functions of the stomach and bowels are performed in most cases of ascites with tolerable regularity. The disease may occur in either sex, and at any age; but like the other forms of dropsy, it is chiefly to be met with in advanced life.

The causes of ascites may be reduced to the following heads. It is, in the first place, a sequel of peritonæal inflammation, both acute and chronic, diffused and circumscribed. This form of ascites is accompanied with tenderness in some part of the abdomen, more especially in the right hypochondrium. It arises, in the second place, from diseased conditions of the solid glandular structures of the abdomen—the liver, spleen, and pancreas. In by far the larger proportion of cases the liver is the organ affected. On dissection it appears enlarged, scirrhus, tuberculated, or studded with hydatids. It is a commonly received opinion, that the dropsy which attends diseased liver is referable to the difficulty with which the blood is transmitted through the vena portæ, and its consequent stagnation, or congestion in the capillaries. This notion is in some measure confirmed by the enlargement which is always more or less observable at the same time in the superficial veins of the abdomen. Something more, however, is probably necessary to constitute a dropsical tendency. It would be impossible, otherwise, to explain why ascites should be so common an attendant on ulcerated stomach and bowels, and such chronic disorganizations as denote a general *decay* of the whole frame. The constitutional origin of ascites is rendered still more evident, in the third place, by its arising from causes exterior to

the abdomen, such as produce dropsy generally, more especially structural diseases of the heart.

The treatment of ascites must of course to a certain degree vary with the cause which gives rise to it. When it depends upon organic disease of the abdominal viscera, it is nearly beyond the reach of art. When it occurs along with extensive anasarca, it denotes so great an extent of constitutional disturbance as almost to preclude the hope of permanent recovery. That form of ascites which partakes of the character of a *local* dropsy, and is connected with inflammatory action in the peritonæal membrane, is the most under our control. The application of leeches, blisters, and fomentations, with the liberal use of mercury, and of saline aperients, has in many of these cases succeeded perfectly in removing the complaint. Where our object is merely to afford temporary relief, the best system of treatment consists in the occasional use of hydragogue cathartics, especially jalap with cream of tartar and elaterium; employing in the intervals such drugs as combine a *deobstruent* with a diuretic quality, more particularly squills and mercury.*

When the accumulation of water becomes so great as to interfere with the breathing, or to create distress by distention of the abdominal parietes, recourse must be had to the *paracentesis abdominis*. It is a commonly received opinion, that tapping, once performed, is a complete bar to the permanent recovery of the patient; but I doubt the correctness of this notion, and I am sure it has often proved hurtful by inducing practitioners to de-

* [Dr. Robert Archer of Norfolk, gives in the Medical Recorder, vol. ii. an account of the successful use of sulphuret of iron, in dropsy: it operates as a sudorific. The dose is five or six grains three or four times a day. It is made by inflaming sulphur over red hot nails, placed over a bowl partly filled with water. The medicine falls to the bottom in the form of a black powder.]

lay the operation too long. I am far from wishing to advocate a hasty employment of the trocar, but I have seen more danger from inordinate distention, than I could ever trace to tapping.

2. **HYDROTHORAX**, or dropsy of the thoracic cavity. The diagnostic symptoms of this form of dropsy are very fallacious. Sometimes we are confident of finding water in the thorax, when that cavity is perfectly free from disease. At other times we observe the thorax full, when we had no suspicion of the complaint existing.* The symptoms usually set down as denoting the presence of water in the chest are of two kinds;—those that indicate dropsy generally, and those that mark mechanical impediment to the function of respiration. In some rare instances, it may be possible to detect the presence of fluid in the thorax by percussion, and external examination; but I am well convinced this can never be held out as a common means of judging of the disease. Of the general symptoms of dropsy I have already spoken. The local symptoms are difficulty of breathing, aggravated by exertion, and by the recumbent posture; a sense of weight, or oppression, referred to the pit of the stomach, and referable probably to the pressure of the effused fluid upon the diaphragm; starting from sleep in a fright; cough; a livid or mottled colour of the lips, such as may be observed whenever respiration is obstructed by a mechanical cause, and the blood imperfectly oxygenated. In the latter stages of the complaint it is not uncommon to find the expectoration tinged with blood.

Many attempts have been made to ascertain the symptoms peculiar to hydropericardium. This form of dropsy

* Vide Morgagni, Letter xvi. *passim*. This chapter contains some valuable remarks on the symptoms of thoracic dropsy, and deserves an attentive perusal.

generally exists along with hydrothorax, but sometimes it is present in a degree to which other appearances do not correspond. On the 5th February 1823, I examined the body of a woman, in whom the pericardium was so enormously distended as to contain eighteen ounces of serum, besides an enlarged heart. In this case, there were no symptoms by which the *exact* nature of the case could have been foretold. It is commonly stated, that in dropsy of the pericardium the pulse is intermittent and irregular, with an unusual *oppression* at the heart, palpitation, and that kind of paleness and anxiety of countenance which is generally to be observed when the heart labours exceedingly in its functions. The early appearance of œdema of the face has been also adduced by some as indicating dropsy of the pericardium.

Of the causes of thoracic dropsy I have nothing to state beyond what was urged in the preceding chapter. In its treatment, the only peculiarity worthy of note is, that here the influence of diuretic medicines is more decided than in any other form of dropsy, and that digitalis is of all others the most generally successful. Paracentesis thoracis has been often proposed, but seldom practised, owing, I presume, in a great degree, to the uncertainty in the signs of hydrothorax. There is no reason to believe that it would afford less relief than the corresponding operation on the abdominal cavity, or that any particular danger attends it.

3. ANASARCA, or dropsy of the cellular membrane. This membrane, so extensively diffused throughout the body, is moistened by a fluid thrown out by its arterial exhalants. In various ways the quantity of this fluid may be increased, constituting the disease called anasarca. The *pathognomonic* symptom of it is the pitting of the skin on pressure. The affection usually commences in the feet and legs, perceptible perhaps at night only. As

the disease advances, the swelling becomes general over the body. The skin is dry and parched. There is a peculiar sallowness of countenance to be observed, with torpor, and disposition to sleep. In severe cases the cuticle gives way, and serum oozes through the pores of the skin. Where the *habit* of body is bad, erysipelatous inflammation and gangrene are apt to follow. In worn-out debilitated constitutions it is not uncommon to find anasarca associated with petechiæ and ecchymoses.

Pathologists in all ages have occupied themselves in enumerating the several causes from which anasarca may originate. Without following them into details, it may be useful to point out those which are most frequently observed to operate.

1. Local anasarca, or œdema, sometimes arises from pressure accidentally made on veins, as by the gravid uterus, swelled glands in the groin or armpits, or a tight garter. The same result occasionally follows, even in healthy states of the system, from a too long continuance in the erect posture.

2. General anasarca arises from a variety of causes which concur in producing a debilitated state of the whole body, and more particularly perhaps of the venous system. Hence it is that anasarca succeeds severe hæmorrhagies (natural or artificial,) fevers, and fluxes; and that it occurs so frequently in the latter stages of diabetes, phthisis pulmonalis, and amenorrhœa. Under such circumstances the dropsical symptoms commence slowly, and as it were *imperceptibly*. There are instances, however, in which the disease comes on suddenly; and to the causes of this *acute* form of anasarca I shall next advert.

3. Exposure to cold and damp has frequently been followed by dropsical swellings. I have known them to commence within forty-eight hours from the applica-

cation of the exciting cause. In this variety of the disease the pulse will commonly be found full and strong, with perhaps some degree of hardness. There will be present at the same time symptoms denoting an affection of the thoracic organs,—tightness across the chest, with cough and dyspnœa, aggravated by exertion and the recumbent posture, and producing *headache*.

4. General anasarca arises, in the fourth place, from excess in the use of spirituous liquors. When the attack is sudden, this dropsy is of the *arterial* kind, and attended with the symptoms just described as accompanying hydropic effusion from cold.

5. Another cause of anasarca is disturbance in the uterine functions. I have already had occasion to notice, that amenorrhœa exhibits itself in two different habits of body, and is accompanied by two opposite trains of symptoms. The dropsy which attends this state of disease is sometimes of the true *atonic* kind, but occasionally it is observed along with an *incompressible* pulse, hæmorrhages from the nose and stomach, apoplectic symptoms, and others denoting plethora and increased arterial action.

6. The only other circumstance requiring attention in the pathology of anasarca, is its connexion with some of the febrile eruptions. It has long been known, that dropsy, particularly in the form of anasarca, occasionally follows scarlet fever. The same phænomenon is sometimes observed as a sequel of measles, small-pox, and crysipelas. It has been conjectured, that the dropsical tendency is here dependent on some morbid condition of the *cutaneous exhalants*, the consequence of the eruption; but there are no sufficient grounds for this notion. The accompanying symptoms commonly point out some obscure affection of the heart and lungs existing at the same time. Under all circumstances, the practitioner will do right to view this form of disease as of *constitutional* ori-

gin, and to be more solicitous about the state of the *system* than of the skin.

From the remark now offered, it will appear that the pathology of anasarca is closely connected with that of hydrothorax. In many cases these forms of dropsical effusion co-exist, and the remedies are the same for both. Blood-letting is better adapted for anasarca than for any other variety of dropsy. 'It has, however, lately been used in hydrothorax.' Where it occurs suddenly from exposure to cold, or excess in the use of spirits, blood-letting is often not only useful, but actually indispensable. The blood drawn is sometimes cupped and buffy, but more commonly it will have the appearance (hardly, however, less satisfactory) of great firmness of coagulum. The effects of blood-letting will be materially aided by the employment of purgatives,* saline and antimonial medicines, and the relaxant diuretics, especially digitalis,† and the acetate of potash.

It is unnecessary to say that this plan of treatment is adapted only to one variety of anasarca. In all cases, the practitioner, by tracing the origin of the disease, and weighing accurately the accompanying symptoms, must form for himself some idea of its *proximate cause*. He

* [Dr. Barton praises the *podophyllum pellatum*, as a valuable cathartic in dropsy.‡]

† [As a subject of observation, the *medeola Virginica* is here mentioned: it is a native plant, and is said to possess highly diuretic properties.§ The *chimaphila umbellata* is also celebrated.||]

The scabious (*erigeron heterophyllum*, and *Philadelphicum*,) have been praised in dropsy. Dr. Eberle prescribed them in the case of judge Yates of Lancaster, with great relief. Dr. W. P. C. Barton has also tried them, and found them to possess very active diuretic properties. They have also been given in the gout combined with dropsy, with the best effects.¶]

‡ See Veg. Mat. Med. of W. P. C. Barton.

§ Ibid. p. 148.

|| Ibid. p. 24 et seq.

¶ Ibid. vol. i. p. 284.

will thus occasionally find the necessity of *supporting* the system, instead of lowering it ; and to effect this he will have recourse to the use of tonics (bark, camphor, bitters, and aromatics,) in combination with the stimulant diuretics.

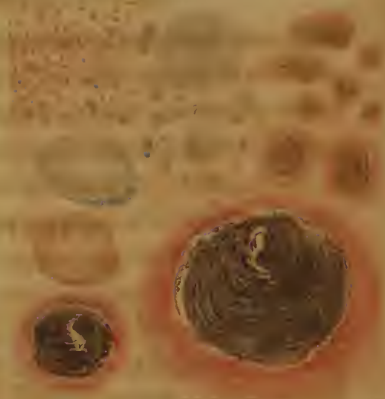
Considerable diversity of opinion has prevailed regarding the propriety of scarifications in anasarca. By some they are utterly condemned, as leading to erysipelatous inflammation and gangrene, while in the hands of others they have proved eminently serviceable. This may partly be attributed to differences in the mode of operating. It appears from comparative trials which have been instituted, that a single deep scarification, penetrating the cutis vera, is much more efficacious, and less likely to produce unpleasant consequences, than the numerous but slighter punctures which are commonly made. It cannot indeed be denied, that in languid habits of body, scarifications of all kinds are occasionally dangerous. The relief which they afford, however, is often surprisingly great, and compensates the degree of risk which they bring with them.

Blisters and issues have been recommended in the cure of anasarca, but they are not advisable.* Frictions, oil-skin stockings, and bandages, are useful where the effusion of serum arises from local obstructions, but they are unimportant in that more numerous class of cases, in which dropsy of the cellular membrane is associated with a disposition to effusion in the great serous membranes of the thorax or abdomen.

* [In dropsy, emetics have been found useful : Dr. Eberle, in his *Materia Medica*, mentions them as particularly adapted to anasarca and ascites.]

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CHAP. VIII.

CHRONIC CUTANEOUS DISEASES.

Outline of their Pathology—Causes operating generally in the Production of Chronic Cutaneous Diseases—Causes operating locally—General System of Treatment—Division of Affections of the Skin into constitutional and local—General Character of the Remedies employed—Willan's Classification—Arrangement of Mr. Plumbe—Notice of the leading varieties of Chronic Cutaneous Diseases—Acne—Tinea Capitis—Psora—Lepra—Psoriasis—Strophulus—Eczema—Porriigo—Prurigo—Impetigo—Ecthyma and Rupia.

A GREAT variety of affections are comprehended under the head of *chronic cutaneous diseases*. Expanded as they have been by some authors into a nosological system, and each made the subject of distinct investigation, it may appear impossible, consistently with the design of this work, to enter upon a discussion of them with any prospect of advantage to the student.* I am indeed

* We have two works in our own language expressly dedicated to cutaneous affections, viz.—Bateman's "Practical Synopsis of Cutaneous Diseases," and Plumbe's "Practical Treatise on Diseases of the Skin." To these useful volumes I am indebted for many of the remarks which have a place in the present chapter.

fully sensible, that in acquiring a knowledge of these affections, attention to detail is requisite. Still it behoves the student to be aware, that there are certain general principles which connect all the chronic diseases of the skin together, and link them in with the great chain of constitutional disorders. To point out these, although in a very summary manner, may possibly be useful. I shall attempt further to direct the attention of the reader to the leading *natural* divisions of chronic cutaneous disease, hoping thus to lay before him the elements of a study which the detailed descriptions of authors may hereafter assist him in pursuing, but a complete knowledge of which can alone be attained by constant attention, and extensive opportunities of observation.

Considering the diversity in the aspects of chronic cutaneous disease, there is less variety than might have been expected in their *exciting causes*. They may be distinguished into such as operate *generally*, and such as act through the medium of the skin itself.

1. In the first class may be ranked the presence of a poison in the system. This is very often the poison of lues, which, in common with other secondary effects, produces every possible variety of *cutaneous* disease. At other times, the poison is that of mercury. Hence it is that cutaneous eruptions constitute so important a part of that complaint to which modern pathologists have given the title of pseudo-syphilis. Sometimes the poison is of a more familiar kind, such as shell-fish, bitter almonds, and other indigestible articles of diet, the influence of which, however, is only partial and transitory.

2. The next source of cutaneous disease is simple *debility*. To this we attribute the cutaneous eruptions bearing the character of *Ecthyma* and *Rupia*, which are observed in persons convalescent from tedious diseases, very remarkably in those who of a naturally scrofulous

habit are recovering from confluent small-pox. Closely allied to it is the state of *cachexia*, or that depraved habit of body which is the consequence of bad food, improper habits, want of air and exercise, irregular hours and modes of living. It has been conjectured, that the *blood* becomes altered in its qualities in these cases, loaded perhaps with saline particles, and irritating the cutaneous capillaries produces different varieties of eruption. This was a favourite doctrine of the humoral pathologists, and many strong arguments might still be adduced in support of it. Although but little talked of in modern times, it preserves its influence on practice, as will be apparent by considering the extensive use now made of the alterative vegetable decoctions.

3. A weakened or cachetic state of the system is not, however, the only one in which chronic cutaneous disease occurs. In some instances there is a degree of plethora present. In the language of the old humoral pathologists the blood is too rich, and stimulates the vessels through which it passes. This is particularly observable in the pustular eruptions to which young persons are subject about the period of puberty (*acne simplex* and *punctata* of Willan.)

4. A disordered state of the stomach and bowels is one of the most common causes of chronic cutaneous disease. Sometimes this consists merely in the lodgment of crudities in the alimentary canal. At other times, the presence of acid in the stomach appears to be the direct occasion of the cutaneous affection. Hence the use of purgatives and of absorbents in the chronic diseases of the skin.

5. Chronic cutaneous disease is sometimes observed in combination with symptoms denoting disorder of the thoracic viscera. I have already had occasion to illustrate this pathological principle when treating of purpura.

6. Lastly, I have seen a few cases which point to a connexion between *lepra*, and an affection of the brain and nervous system. I am well convinced that a disordered state of the cerebral functions has given rise to *erysipelas*; and I have therefore no difficulty in imagining, that the same principle may possibly operate more extensively in the production of cutaneous disease.

Besides these *general* sources of cutaneous affections, there are others whose influence is very extensive, which may be referred more immediately to the skin itself. 1. The first I shall notice is a peculiar *irritability*, or delicacy of the skin. This is the probable cause of those numerous cases of *strophulus* which occur in infants, whose skin is as yet unaccustomed to the stimulus of air and soap. This irritable state of the skin often exists through life; and hence it is that leeches and blisters produce in such habits very unpleasant effects. It is in some instances *hereditary*. The principle appears to be one of very general application in the pathology of cutaneous complaints.

2. The next cause of chronic cutaneous disease which requires attention, is want of cleanliness. It is doubtless on this account that obstinate cutaneous affections are so much more common among the lower than the higher classes of society. Hence too the great value of warm ablution in their treatment.

3. The third is local irritation. Its influence in the production of cutaneous disease is generally acknowledged, and is indeed very extensive. The principle is fully shown in the common effects of blisters, plasters, and antimonial lotions; but it is chiefly exemplified in those eruptions which follow the long-continued stimulus of the sun's rays, of flour, sugar, lime, or soap, constituting some of the species of eczema and psoriasis.

4. The last source of chronic cutaneous disease which

I shall notice is contagion. There are not many cases, however, to which it applies. Psora and tinea capitis are perhaps the only unequivocal proofs of it which can be adduced.

In laying down a few general principles applicable to the treatment of these affections, I must first advert to the necessity of distinguishing them according as they are constitutional or local. Chronic cutaneous diseases may, in fact, be divided into two classes, such as implicate the constitution to a greater or less degree,—and such as are decidedly local, arising from local causes, remediable by local means, and in the ordinary course of events not influencing the system at any period of their progress. There is a foundation in nature for this distinction; but in other respects these two classes of diseases are too intimately connected to make it possible to discuss them separately. In practice, however, it must be remembered, that where the disease is essentially local, topical remedies are required. On the other hand, where the constitution is in fault, local measures are of little or no avail. It is true, that in the treatment of the latter kinds of cutaneous disease we are often glad to have recourse to local means (even though their influence be but insignificant,) for a large proportion of such affections are unaccountably obstinate.

Further, an attempt should always be made, in the first instance, to determine the cause of the complaint; for this, if successful, will at once point out the proper remedy. When the origin of the disease cannot be ascertained, the general system is to be looked to; and according as a state of fever, of cachexia, of debility, or plethora be present, remedies are to be employed adapted to the circumstances of the case. Attention is to be paid, in the third place, to the functions of the brain, the heart, the stomach, and the bowels, and any irregularities in

them corrected by appropriate means. Lastly, the state of the skin is to be accurately examined, with a view to determine whether the superficial vessels are *irritable*, requiring *soothing* medicines, or in that state of *torpor* which will be benefited by *stimulating* applications.

The constitutional remedies applicable in cases of chronic cutaneous disease are, purgatives, absorbents, tonics, alteratives, febrifuges, and lastly, such medicines as exert a peculiar effect upon the vessels of the skin. This class of drugs will naturally be resorted to whenever we fail in detecting some obvious cause for the complaint; and they ought frequently to be varied until we find one that fulfils our expectations. Those which experience has shown to be the most efficacious are dulcamara, sulphur, pitch, mercury, antimony, and arsenic.

The local applications employed in cutaneous diseases are divisible into three kinds;—the mild, the cooling, and the irritating. To the first belong cold cream, pomatum, simple ointment, and the vapour of warm water. To the second, lotions of goulard, of vinegar, of the muriate of ammonia; and the ointments of zinc and of sugar of lead. Of the irritating applications, the variety is infinite. Those in most general use are citrine ointment, sulphur ointment, the decoction of white hellebore, spirituous lotions, and lotions containing either lunar caustic or corrosive muriate.

There is still another class of remedies employed in the treatment of chronic cutaneous complaints which may be considered to possess a double influence, that is to say, to act both generally and locally. Of this kind are sulphureous baths, mineral waters, and the warm and cold sea water bath.

A brief sketch of the principal varieties of chronic cutaneous disease will conclude the view which I proposed to take of this subject, and complete at the same time the design of the present work.

Dr. Willan divided cutaneous diseases into eight orders, according to the appearances of the eruption in its most perfect state. This classification is now so generally adopted in this country, that it may be useful to the student to place it before him.* He will perceive that many of the diseases arranged by Willan as cutaneous have been already discussed in this work; either as febrile or as constitutional disorders. These I have distinguished by italic characters. The remainder constitute the genuine affections of the skin.

ORDER I.

PAPULÆ. (*Pimples.*)

Papular Eruptions.

Genus.

1. Strophulus.
2. *Lichen.*
3. Prurigo.

ORDER II.

SQUAMÆ.

Scaly Eruptions.

4. Lepra.
5. Psoriasis.
6. Pityriasis.
7. Ichthyosis.

ORDER III.

EXANTHEMATA.

Efflorescences.

8. *Rubeola.*
9. *Scarlatina.*
10. *Urticaria.*
11. *Roseola.*

Genus.

12. *Purpura.*
13. *Erythema.*

ORDER IV.

BULLÆ. (*Blebs.*)

14. *Erysipelas.*
15. *Pemphigus.*
16. *Pompholyx.*

ORDER V.

PUSTULÆ.

Pustular Eruptions.

17. Impetigo.
18. Porrigo.
19. Ecthyma.
20. *Variola.*
21. Scabies.

ORDER VI.

VESICULÆ.

Vesicular Eruptions.

22. *Varicella.*

* See Bateman's Synopsis, page 1.

Genus.

- 23. *Vaccinia*.
- 24. *Herpes*.
- 25. *Rupia*.
- 26. *Miliaria*.
- 27. *Eczema*.
- 28. *Aphtha*.

ORDER VII.

TUBERCULA.

- Tubercular Eruptions.
- 29. *Phyma*.
- 30. *Verruca*.

Genus.

- 31. *Molluscum*.
- 32. *Vitiligo*.
- 33. *Acne*.
- 34. *Sycosis*.
- 35. *Lupus*.
- 36. *Elephantiasis*.
- 37. *Frambæsia*.

ORDER VIII.

MACULÆ. (*Spots.*)

- 38. *Ephelis*.
- 39. *Nævus*.
- 40. *Spilus*.

I have already (vol. i, p. 174) had occasion to express my distrust of some of the principles on which this classification is founded; and as it is clearly inapplicable to our purpose, I shall avail myself of a different arrangement, suggested in a great degree by that of Mr. Plumbe.* It has the merit of resting on principles strictly pathological, and is well calculated, therefore, for elementary instruction. It distributes cutaneous diseases into four orders:

Order 1.—Diseases strictly local, deriving their characters from local peculiarities of the skin:

- 1. *Acne* and *Sycosis*.
- 2. *Tinea Capitis*, or *Porrigo Scutulata*.
- 3. *Psora*, or *Scabies*.

Order 2 —Diseases marked by chronic inflammatory action of the vessels forming the cuticle, producing morbid growth of that structure. Constitutional causes or influence uncertain:

- 4. *Lepra*.
- 5. *Psoriasis*.

Order 3.—Diseases having a decidedly constitutional

* Plumbe's "Practical Treatise." London, 1824.

origin, and characterized, in their progress, by local and constitutional excitement :

6. Strophulus.
7. Eczema.
8. Porrigo.
9. Prurigo.
10. Impetigo.

Order 4.—Diseases dependent on debilitated states of the constitution, and characterized by diminished tone of the vessels of the cutis :

11. Pompholyx.
12. Ecthyma and Rupia.

On these twelve genera of cutaneous disease I shall now offer a few remarks, referring the student to the works already quoted for such *detailed* information concerning them as may complete his knowledge of this very necessary branch of medical literature.

1. ACNE consists essentially, in its original form, of simple obstruction to the free passage of the sebaceous matter to the surface of the skin ; in consequence of which, that substance accumulates, hardens, distends the follicles which contain it, and ultimately causes inflammation and small abscesses. It is a very frequent complaint from the age of puberty up to the twenty-fifth year of life. It is characterized by an eruption of papulæ in the face (especially on the forehead and chin,) as well as on the neck, shoulders, and breast. It never descends to the lower parts of the trunk, or to the extremities. It is common to both sexes, but the most severe cases of it are seen in young men. Persons labouring under it enjoy for the most part good general health, and are often unable to refer the complaint to any obvious exciting cause. The eruption occasionally recedes for a time, and recurs, more especially after violent exercise, great heat of the weather, a more liberal use of wine, or any unusual ex-

citement of the cutaneous circulation. Except in females this complaint seldom calls for the attention of medical men. It is altogether a local disease, and neither requires, nor is benefited by a low diet, or by purgatives, alteratives, or other internal medicines. At the same time it is to be remarked, that external applications are equally without influence. The disease, therefore, usually proceeds to its natural but distant termination.* Sycosis is

* ["A number of little hard, inflamed tubercles" (acne simplex,) interspersed with minute black specks (acne punctata,) produced by the sebaceous matter filling the orifices of the follicles, form this disease. They proceed gradually and at different times to suppuration;† fig. 1. of the Plate represents the follicles in the uninfamed state. Fig. 2. the same inflamed, enlarged, and indurated (a. indurata.) Small pearl-like tubercles are sometimes observed in the skin, produced by the deficiency of an opening by which the fluid can be discharged. They seldom attain the size of a wart, rarely suppurate, and generally disappear by absorption.‡

With regard to the treatment of pimples on the face, frequent bathing, and gentle friction of the parts with warm water and soap, are the best local remedies; repellents, as lead water, do no good. This inflammation is sometimes connected with disorder of the stomach in its most common form, in young people between the ages of eighteen and twenty-five. I have removed it by giving half a grain of calomel, and a quarter of a grain of blue vitriol, thrice a day. The tubercles in a few days disappear, leaving only a brown mark. Dr. Darwin recommends blisters. They are inconvenient, though they are probably valuable, as they remove the sebaceous matter of the follicles, which cause the disease. Carbonate of potash (10 grains every two hours) given internally, is recommended, as also the oxymuriatic acid in the dose of ten drops five or six times a day, in half a pint or more of sweetened water.§ Sometimes these tubercles, when connected with a scrofulous diathesis, and disordered digestion, terminate in a slow and unhealthy suppuration, which spreads into the adjacent follicles, producing in the skin considerable collections of matter and inflammation. The skin assumes a dark blue colour, is tender and soft to the touch, particularly in one or two points. If opened, an unhealthy livid edge remains, followed by a mark on healing. If it be not opened, the matter is discharged through

† Bateman.

‡ Ib.

§ Plumbe.

nothing more than acne occurring in parts covered by hair, especially the chin.*

a small orifice, and gradually the sore heals up, leaving a blue spot, which remains for months.†

Poultices, fomentations, puncturing the tumour, and the evacuation of its contents, appear to be the most approved forms of treatment; afterwards, a lotion of five grains of corrosive sublimate, dissolved in eight ounces of proof spirit, to remove the spots, is valuable. They are to be lightly spunged with it. Mercurial ointment rubbed on the parts at night, also answers well to remove the spots.

This disease occasionally occurs with symptoms of disorder of the stomach, disagreeable breath, bilious and furred tongue, general heat, feverishness, and languor. Tonics then are the best remedies.‡

When it attacks the nose in old drunkards, or those addicted to the pleasures of the table, sometimes three or four follicles are inflamed, which being repeated by continued excesses, the nose acquires a red, swollen, and tuberculated appearance. If called early, the puncture of a lancet discharges the matter; and moderate diet, with purgatives, confirms the cure. Friction upon the nose, by means of soft brushes, and soap and water, diminishes the swelling and redness, and improves its appearance.‡

The best remedy is a change of those habits on which this affection depends; and the use of tonics, and alkaline medicines, to remove acidity, or any concomitant disorder of the stomach.‡

Sometimes the follicle enlarges, and forms a considerable tumour. It appears frequently in the face and the shoulders, from the pressure of suspenders, and on the head by the hat; it is then only cured by extirpation of the cyst, of which it consists. An incision should be made into it, and then pressing the sides of the skin together, the cyst may be everted and removed. If it be attempted to extract it whole, the cyst is divided and the dissection is tedious and painful. By making a free incision into it, it is easily raised by the forceps, and dissected from the surrounding cellular membrane. It may be relieved by temporarily first introducing a probe, and then pressing the tumour, and thus discharging the sebaceous matter. This operation must be repeated as fast as it fills; the place of the follicle points out that in which the probe should be introduced.‡]

* [See Plate, fig. 3. Puncturing the tubercles, pulling out the hair which grows from them, and poultices, form the treatment. It nearly resembles tinea.]

† Plumbe.

‡ Cooper and Travers' Essays.

2. *TINEA CAPITIS* (the *porrigo scutulata* of Willan,) commonly called ring-worm of the scalp, or *scald head*, is an affection of a very peculiar kind. Its leading feature is the falling-off of the hair, arising (according to Mr. Plumbe, who has paid great attention to this subject) from excessive excitement of the vessels of the scalp, which deprives the structure secreting the hair of its due nourishment. It undoubtedly originates in the application of an infectious matter, and it spreads by the secretion of the pustules which are formed. It is a singularly obstinate complaint, and resists, in many cases, for a great length of time the best directed exertions of medical art. The treatment consists in shaving the head, carefully washing away the matter that has formed, and subsequently stimulating the affected parts. Lotions of the sulphate of copper, and of lunar caustic; the ung. hydr. nitr. and the ung. hydr. præcip. albi are the applications generally resorted to, and for the most part with good effect. Internal remedies are not required except to allay constitutional irritation which may *accidentally* have arisen.*

* [*Tinea* consists of "clusters† of minute, oozing, red prominences, dispersed in spots through the hairy scalp: some advanced to suppuration, leaving pits or hollows filled with pus, giving a honey-comed appearance, covered here and there with a whitish or yellow scab (*tinea favosa*).‡ In many, large patches of scab of a definite shape (*porrigo scutulata*, see pl. IV. and V.,)§ matted in the hair occurs; in some instances one large crust covering the entire head like a close cap, corresponding with the *tinea crustacea* of Sauvages, and the *crusta lacea* and *larvalis*" (see plate, fig. 12) of Willan: "again a glued condition of the hair is seen, which may be considered to bear some analogy to

† Dr. Crampton on *Tinea*. See plate, fig. 11, for the appearance of *por. favosa*. Alibert, Sauvages, Willan, and Bateman.

‡ Of Willan and Bateman. See plate, fig. 4, representing the *porrigo scutulata* before the formation of scabs: fig. 5, the partially denuded scalp of long established cases of this disease, with scabs, great irritation, and the hairs which remain insulated by pustules.

§ *Ibid.*

3. PSORA OR SCABIES, so well known under the familiar denomination of *the itch*, is a very troublesome com-

the *tinea granulata* of Alibert. In other instances the cranial teguments" show "a scaly appearance, with only a few scattered hairs here and there, the colour of the scabs varying from white to brown. The scabs in some are firmly attached to the skin of the head, in others they fall off like bran (*tinea furfuracea* and *asbestina*.)"* Finally, the head is completely bald (*alopecia* or *porrigo decalvans*.)†

The high authority of Dr. Crampton, from whose Essay on *Tinea* the above extract is taken, settles into one the many varieties of this disease: I have, in the same patient, seen the characters of the masked (or larvalis,) in which the scabs form in extensive plates, also of the *granulata*; and where the inflammation extended to the face, a scaliness resembling the *lepra vulgaris*, and on the neck, the *psoriasis*, which we have considered above as a mild variety of *lepra*. The masked species by Bateman is thought to be the same as the running tetter, which has also been identified with herpes, under which we have thrown all the varieties of *tinea* and *porrigo* above enumerated. This form of disease also claims affinity with dandriff, as ulcerations generally follow the long neglect of this scurfy state of the cuticle, facts, which show the necessity of simplifying this complicated subject.

Conformably to this view, that all the varieties of this disease are one, we give the treatment of that form, in which local remedies appear to be most effectual, and in particular the description and cure given by Mr. Plumbe, who considers it contagious, and best treated in his own peculiar mode. With this, however, the enlightened part of the medical world disagree. We shall then proceed to consider those which are best treated by constitutional means.

Symptoms of the local form: falling off of the hair, a scurfy and slightly reddened appearance of the scalp on the bare spot, from which the few remaining hairs drop off easily, when slightly pulled: itching succeeds, with yellow pustules surrounding the roots of the hair, containing matter, by which alone the disease is extended by successive applications to the scalp, a circular areola forming on the part, on which the matter falls; the scabs adhere to the hair, accumulate, and produce the disease in its worst forms.‡ (See plate, fig. 4, for the appearance of these pustules previous to the formation of scabs.)

Treatment: His plan of treatment consists in pinching up the skin,

* Sauvages and Alibert.

† Willan and Bateman.

‡ Plumbe.

plaint, which usually assumes the form of small vesicles intermixed with pustules; but its aspects are very various

pressing out the matter, then washing the surface carefully. The hairs which come away easily are removed with a forceps, as he believes they act as foreign bodies, and increase the irritation.

The application of pitch to the inside of a cap, and its subsequent removal, drawing with it the hair of the diseased as well as healthy parts of the scalp, he considers as cruel and indiscriminate. Shaving also is inadequate, for the stumps of the hair still operate as an unnatural stimulus. The pus is then removed by soap and water, or a solution of blue vitriol, or, what is better, by rubbing the part with the powder of that salt, and then washing it off. Any additional inflammation which may appear, the result of extraction of the hair, will be removed by sedative applications. The contents of the pustules must be pressed out every morning, and the blue vitriol applied again as above, till at length no fresh pustules appear; small thin scabs, of a darkish colour, like those from other abrasions of the cutis succeed, these separate, and bear a shining red, irregular surface, which, gradually losing its inflammatory character, becomes covered with scurf, till the appearance of the new hair, which take place in six weeks or two months, and at the end of three months it will have acquired its original strength.*

The local remedies which have been advised are various; they all frequently fail; are often useful; their actual value, however, is only to be ascertained by a trial in each particular case.

Ointments of white precipitate alone, or mixed with cerate of goulard;—of calomel;—of red precipitate;—sulphur ointment and soft soap in equal parts, intimately mixed;—tar and sulphur ointments; ointment of subacetate of copper;—the strong blue mercurial ointment;—of nitrous acid;—of acetate of lead and opium;—of hellebore;—of mustard;—stavesacre (*delphinium staphisagria*);—of black pepper;—of capsicum;—of Aleppo galls;—of rue;—of *cocculus indicus*, $\mathfrak{z}\text{ii}$ to $\mathfrak{z}\text{i}$. of lard. Lotions of sulphate of zinc and copper;—gum ammoniac dissolved in vinegar, made to the consistence of a plaster, and spread upon linen;—of oxymuriate of mercury;—of nitrate of silver;—of solutions of potash;—diluted muriatic acid;—the muriated tincture of iron applied to the part;—adhesive plaster to the spots;—strong savin ointment;—citron ointment, with the addition of the nitrous acid;—lotions of sulphuret of potash;—the decoction of tobacco, (to be ap-

* Plumbe.

and deceitful. It may at all times, however, be distinguished by the incessant and importunate itching which

plied with great caution, as it has been fatal;)—tar water;—the water obtained after preparing the carburetted hydrogen gas;—powdered charcoal;—ointment of the oxide of zinc;—lime-water and sweet oil in equal parts;—the ointment of sulphuric acid removes the itching, and has been much praised by Crampton; it, however, corrodes the linen. Poultices of oatmeal and common brown soap, reduced to a soft jelly;—of soap and of oatmeal half boiled and mixed together; these last remove the incrustations soon. The ointment of Banyer is highly recommended.

R. Ceruss. oz. i.

Pulv. litharg. ʒiii.

Alum. ust. dr. iss.

Mercur. corros. sublim. dr. iss.

Axung. porcin. oz. iv.

Terebinth. Venet. oz. i. m.

The application of the strong sulphuric acid and its immediate removal by ablution with water. Cicuta (*conium maculatum*) in pills night and morning, with poultices of the same plant. Charcoal alone, or mixed with sulphur, and made into an ointment, have their advocates.

In old cases, attended with considerable accumulations of scabs, in the experience of Mr. Plumbe, extraction of the hair, pressure on the surface of the head, by adhesive straps and bandages, and the application of lead water at the same time, effectually cured them. Setons were of no use. Ointments he condemns, as they spread the infection. Constitutional treatment is of no value, excepting where there is great irritation, consequent on accumulation of scabs from uncleanness. In those cases where the disease has not loosened the hair, and where its extraction is attended with great pain, a palliative plan must be followed; as fomentations, the use of lead water, frequent washing the scalp with soap and warm water, and finally the use of a weak solution of lunar caustic, alternated with one of diluted alcohol, to remove the scurfy state of the scalp, which generally follows.*

Of Constitutional Cases, and their Treatment.—The constitution, in the opinion of Mr. Plumbe, is always affected in the species termed *favosa* and *larvalis*, which may be considered merely as aggravated forms of the disease. Depletion and alteratives, with local applications, which

* Plumbe.

attends it, the constitution being perfectly unaffected. It appears occasionally on every part of the body, the face

have a tendency to remove pain, comprehend his plan. The scabs must be removed by continued soaking in warm water, with a plentiful use of soap. The head must be shaved; poultices and fomentations applied to allay inflammation; with these aids, though used with perseverance, a viscous fluid is secreted for some time, which requires the application of a solution of lunar caustic:

R. Argent. nitrat. ℥i.

Aq. distillat. oz. i. m.

or of sulphate of copper,

R. Cup. sulph. ℥i.

Aq. fervent. oz. ss. m.

two or three times a day, with a camel's hair brush, to the abraded surface, until the discharge ceases; the strength of the solution may be increased, as occasion may require. In all cases where the constitution appears to be affected, the use of mild purgatives, and occasionally, when debility attends, a tonic and stimulating diet, are found effectual. Blisters to the back of the neck have been useful in arresting its progress.

In cases connected with a scrofulous disposition, the tonic plan, with purgatives of rhubarb, has been used with advantage. Warm baths repeated every third evening, with saline cathartics, every second morning, with the application of poultices of oatmeal—of soap reduced to a stiff jelly—of soap and oatmeal boiled together, form the plan which has succeeded with Dr. Crampton, and is worthy of attention: he thinks the extraction of the hair, so warmly recommended by Plumbe, unnecessary; Alibert, and other eminent men of France, support the opinion of Dr. Crampton. In two instances of tinea, followed by baldness, the hair was not renewed, and in general, in this last variety (decalvans,) the hair gradually grows again, though it is doubtful whether its re-appearance is expedited by any known remedy. The appearances which the disease exhibits are a gradual falling off of the hair, followed by bald indented spots on the scalp, of a pale shining appearance, frequently unconnected, however, with any eruptive disease; of course it is then improperly considered as a species of tinea.

In this city an empirical remedy, supposed to be principally the essential oils of peppermint and cinnamon, has been successful in some instances in increasing the growth of hair in baldness. It is certainly worthy of further experiment, as well as other remedies of the same class.

alone excepted. Its most usual seat is about the wrists and fingers, the fossa of the nates, and flexures of the

Frictions with laudanum on the bald place have been also said to be useful: on this point I have no experience. Constant shaving; liniments containing an essential oil dissolved in spirit, (2 oz. of the oil of mace, in 3 oz. of alcohol,) and the oil of tar, petroleum Barbádense, camphor, and turpentine, are recommended by authors. They will almost universally fail.

Herpetic eruptions occur on other parts. Those upon the lips, occasionally attended with blisters in the fauces, coming on after a common cold, or indigestion; or supervening upon more serious general diseases, as bilious fevers, and dysentery, require no particular notice. That which occurs upon the prepuce is more serious, as it is often mistaken for chancre.

Herpes on the Prepuce.—Itching and heat attract the attention to the prepuce; which exhibits small red patches, upon which are five or six minute red and transparent vesicles, which enlarge in 24 or 30 hours, and become milky, coherent, and pustular: if on the inside of the prepuce, so as to be protected, they break about the fourth or fifth day, and form an ulceration on each patch, which has a white base, edges slightly elevated, much resembling chancre, particularly if caustic has been previously applied. These irritants produce inflammation, and deep seated hardness: when no application has been made, the ulceration, after continuing for nine or ten days heals, and the scabs fall off on the 13th or 14th day. When it occurs on the outer surface of the prepuce, the contents of the vesicles begin to dry about the fifth day into a dry acuminate scab, and the part heals below by the ninth or tenth day,* the scab falling off about that time.

Generally, however, it appears that the friction of the clothes or the fingers, presents the complaint to our observation in the form of ulcer, with a yellow white plain surface,† by the removal of the scab.

The vesicles of this form of herpes are distinguished from chancre by the circumstance, that there is no thickening of their basis; they resemble abrasions, only with the difference of the white speck, presented on their removal. If caustics have been applied, it exhibits the appearance of an irritable superficial sore.

There is another disease of the prepuce (*venerola vulgaris*) which deserves consideration; a pustule, drying on the spot, forming a larger and more solid scab than that formed in the above disease; the scab

* Bateman.

† Evans.

joints. The itch is highly contagious. There is every reason to believe that it consists essentially in the presence of a minute insect burrowing and breeding in the skin. This insect was first accurately described by Bonomo, in 1683, and is now called the *acarus scabiei*. To this, as to all other insects, sulphur is a complete poison, and, therefore, beyond all other remedies, entitled to the character of a *specific*. There are few cases of *genuine* scabies which will not yield to the steady employment of the sulphur ointment. Five or six applications, assiduously made, are usually sufficient to effect the cure. In very obstinate cases, the ung. sulphuris compos.* containing the white hellebore, may be substituted with advantage.†

adheres closely to the surface, and if it be raised up it is attached by a stringy slough; a copious secretion of matter is also observed under it, which concretes on the scab already formed, and gradually enlarges it; when it separates an ulcer is discovered below, which heals by granulation.‡

These diseases are usually the result of indigestion. Laxative medicines, with lead water applied to the part; if it do not speedily heal, the black lotion, which consists of calomel (1 dr. with 6 oz. of lime water,) may be substituted.§

Herpetic vesicles on the eyelids, with smarting and itching, followed by inflammation of the conjunctiva, is treated best by gentle laxatives, and lead water.]

* [Jasser's ointment is a celebrated formula for this disease :

R. Flor. sulph. ℥ii.

Sulph. zinc. ℥ii.

Ol. lauri. axung. porcini. q. suf. ut fiat unguent.||]

† [The sulphur vapour bath; decoctions of hellebore, digitalis, and tobacco; sulphuric and oxygenated muriatic acid, properly diluted; solutions of oxymuriate of mercury, muriate of ammonia, and of potash, are the remedies best supported by recent and more distant observation. Sulphur given internally is considered by Heberden as entirely useless. It is so, except to prevent the production of other diseases by its retrocession.]

‡ Plumbe and Evans.

§ Ibid.

|| See Eberl. Mat. Medica.

*Anti-psoric Lotion. (Hotel Dieu.)*R. Dry sulphuret of potash, ℥iv .

Water, lb. i.

Sulphuric acid, ℥iv . m.

To be applied to the pimples thrice a day, and the warm bath used every night.

*Lotion of Alibert. (Saint Louis.)*Sulphuret of potass, ℥i to ℥ii .

Water, lb. i.

Or,

Oxymuriatic acid, ℥i to ℥ii .

Distilled water, lb. ii.

Put one ounce of this water into four ounces of hot water, and rub the skin with it.

*Sulphureous and Gelatinous Bath.*Sulphuret of potash, ℥iv .

Common water, lb. cc. (Paris Hospitals.)

Throw into this solution—

White Flanders isinglass, lb. ii.

Dissolved in boiling water, lb. x.

for a bath : this bath has all the properties of the hot sulphureous mineral waters ; (Bareges, &c. in France.) With the last addition, it forms the bath used by Dupuytren.

The anti-psoric Bath of the Hotel Dieu.

Sulphuret of potass (dry) lb. i.

Water, q. suf.

*Sulphur Bath for Children. (Hopital des Enfants.)*Sulphuret of potash, ℥ii .

Common water, lb. c.

Sulphureous Soap Lotion. (Saint Louis.)

Sulphur,	} a ℥iii .
White soap,	

Water, lb. xv.

Dissolve the soap in the water (cold,) press it through a linen cloth, and then add the sulphur.

Mercurial Lotion. (Saint Louis. M. Alibert.)

Oxymuriate of mercury (cor. sub.) ʒi.

Distilled water, lb. i.

The parts affected are bathed with it, wetted with a sponge : it is also used in other eruptions not attended with inflammation.

Alcoholic Soap Lotion. (Hopital des Enfants.)

Soap, ʒii.

Alcohol, lb. i. m.—For the itch in children.

Sulphureous Soap Liniment. (Hopital des Enfants. M. Jadelot.)

Sulfuret of potass, ʒvi.

White soap, lb. ii.

Olive oil, lb. ii.

Volatile oil of thyme, ʒii. m.

The sulphuret of potash is dissolved in one third its weight of water ; the soap is then dissolved in a water-bath, and the oil is added by little, at the same time triturating it : the solution of the sulphuret, and the mixture of oil and soap, are accurately triturated.

Turpeth Mineral Ointment. (Saint Louis. M. Alibert.)

Turpeth mineral, ʒii.

Lard, lb. ii.

Triturate the finely powdered turpeth mineral with the lard, moderately warmed : it should be stirred till cold.—Used in old darts eruptions.

Sulphureous Alcaline Ointment.

Sublimed sulphur, 2 parts.

Purified potass, 1 part.

Lard, 8 parts.—For the itch.

Sulphureous Soap Ointment. (St. Louis. M. Lugol.)

Washed sulphur, }
White soap, } lb. i.

Dissolve the soap in water ; pass it through a sieve, and add the sulphur. It does not soil the linen, and is the best of all applications for the itch. It must be used with the warm bath.

Soap Ointment. (St. Louis. M. Lugol.)

White soap, lb. i.

Common water, lb. iss.

Soften the soap in water, and pass it through a sieve. It is rubbed on the

skin for the itch, and succeeds when no other treatment will be submitted to, and sufficiently soon.

Ointment against the Itch. (St. Louis. M. Melier.)

Subcarbonate of potash, ℥ii.

Water, ℥i.

Oil of olives, ℥iv.

Flowers of sulphur, ℥v.

Dissolve the carbonate of potash in warm water; add the oil; form a soap of it; mix by little and little the flower of sulphur, triturating it carefully. It cures generally in thirty days.

4. LEPRA is the most common, the most obstinate, and upon the whole the most formidable of all the varieties of chronic cutaneous disease. In its simple form it is recognised by its circular patches, about the size of a half-crown piece, covered with small shining scales, encircled by a dry, red, and slightly elevated but well-defined border. It occurs at all periods of life, and under every variety of external circumstance. Except when very severe, it is not attended with uneasiness in the part, and hardly ever with constitutional disturbance. The pathology and treatment of lepra have long been the opprobria of physic. In some cases an hereditary origin may be traced; but beyond this little is known regarding its causes. The system of treatment, therefore, is quite empirical. Dulcamara is perhaps the only remedy which practitioners have agreed in recommending, and yet its influence is often slight, and seldom permanent.*

* [The symptoms of this disease often first appear in yellow, white, or reddish spots, disposed here and there upon the skin, which sometimes becomes blackish, thickened, rugous, and unctuous; the patient looks full, without any scales or crusts upon his skin; his physiognomy, however, has something repulsive; his respiration is embarrassed, and his breath fœtid.† The local affection increases and is characterized by red, inflamed patches, producing scales without vesicles or pustules, un-

† Dict. des Sciences Medicales, art. Lepre.

5. PSORIASIS (see pl. 21.) is closely allied to lepra, both in its appearance and general pathology. It chiefly

attended by pain or smarting.* At first the round red spots are elevated, and are about the size of a split pea; the skin of the part loses its natural flexibility; the surface of the spot becomes glossy, hard, and covered with a semitransparent smooth scale, which soon separates, and is followed by some roughness and irregularity on the surface: a small prominence is observed in the centre of the scale, with a corresponding depression in the skin; and, if the scale has been separated with difficulty, a small speck of blood appears: neither the prominence, however, nor its corresponding depressions, are found in the scales which subsequently appear. The diseased spots enlarge in size and increase in number, till they gradually extend over the whole body. Pricking† is sometimes felt before the separation of the first scale, but never afterwards. Painful fissures and cracks exist in the skin, about the joints. The formation of the nails in some instances is not complete, and is attended with a fluid discharge at their roots: this occurrence, however, is rare in temperate latitudes. It appears, most commonly, where the bone is nearest to the surface; seldom, at first, on fleshy parts, as the calves of the legs; and, generally, on the two corresponding sides of the body at the same time, as upon both elbows, both knees, &c. A fact, which, we believe, shows its constitutional origin, though the state of the health is apparently not at all affected in most cases. In the West Indies, Dr. Monges, one of our most able practitioners, has informed me that the lobes of the ears, the upper lip, the parts between the eyelid and the eyebrows are first affected. Insensibility of the skin, even to the touch of a red hot iron, and the formation of a glutinous ropy pus also sometimes accompany it. This disease has been divided into the white (alphoides,) see plate, fig. 20, and black (nigricans,) varieties: the latter is the typhoid state of the disease, and is produced by fatigue, improper food, cold, damp, uncleanness, and other debilitating causes:‡ exposure to dry and light powdery substances sometimes produces the disease in its common form.§ In one person, spices and alcohol; in another, copious draughts of cream were the causes of it. Idiosyncrasy evidently contributed in these instances.

This terrible disease frequently continues through life, and unfortunately, in its worst forms, little and too frequently no dependence is to be placed in medicine. Dr. Monges has informed me, that in Cayenne

* See plate, fig. 20.

† Plumbe.

‡ Willan & Bateman.

§ Willan.

differs from lepra in the *irregular* shape of the patches, and their being frequently accompanied by *rhagades*, or fissures of the skin. Psoriasis is not less difficult of cure than lepra. It is sometimes benefited by the application of dilute citrine ointment, and I have derived some advantage from the internal use of sulphur combined with the carbonate of soda; but like lepra, it often continues, even through life, in spite of every effort of medical art.*

a surgeon was entrusted by the French government with a certain number of patients every year, with a view to discover some mode of cure: every plan proved abortive. He believes that the disease is neither contagious nor hereditary in the West Indies.

It is undoubtedly true that it appears most frequently among the poor, yet it is also found in persons in comfortable circumstances, particularly in females, when, in the opinion of Mr. Plumbe, the susceptibility to it is generally hereditary. As its subjects are so frequently incurable, it is consolatory to know that the tenderness of the cuticle, beneath the armpits and in the arms and hands, generally subsides as the patient advances in life.†]

* [With regard to the treatment of lepra and psoriasis, as they sometimes affect and are affected by the state of the system, bleeding and purgatives have been recommended; these remedies are applicable only to cases where there exists an inflammatory diathesis. In the typhoid state (lepra nigricans) a regular plan of nutrition, diet, and moderate exercise, the mineral acids, sea bathing, with the bark, have succeeded completely. In general, however, it will be found, if the case be curable, that the following remedies are entitled to most confidence in the more violent form (lepra:)

Mineral waters, particularly those of Bath, Borege, and Harrowgate,‡ externally, by showering, and also their internal use. The latter is cold and hydro-sulphurous.

The waters of Bath are saline and warm (92° to 94°,) and, when first drawn, from 112° to 116° Fahrenheit.

Those of Borege are from 88° to 113° of Fahrenheit, and hydro-sulphurous.

† Plumbe.

‡ For the mode of preparing the Harrowgate water artificially, see the article Prurigo, in this chapter.

6. *STROPHULUS* is the earliest form of chronic cutaneous disease ever observed. It comprises several papular

Warm vapour baths, both of salt and common water, when they can be borne, have been useful. The aqua kali puri of the London Dispensatory, in doses of twenty or thirty drops thrice a day—the arsenical solution—as internal remedies, have strong testimonies in their favour. The nitrous and muriatic acids are also recommended, though they are less effectual. The vinum ferri has also been given with advantage. The external and internal use of the solanum dulcamara, according to the plan of Dr. Creighton, has succeeded.* The sulphur bath is also said to be valuable. In the Isle of France, turtle soup, with excessive diaphoresis, excited by lying in the sand, effected a cure. Casal states, that butter, administered largely, has also cured it. A milk diet is frequently salutary in diseases of the skin. Larry, the great surgeon of the French army, cured it by the decoction of the burdock, (*arctium lappa*), and the herb patience, with the tincture of bark in the morning and in the evening, the syrup of sarsaparilla to excite perspiration, with camphor and opium to relieve pain. The golden sulphuret of antimony was also given as a sudorific, with the bitter extracts. Emollient applications and anodyne ointments were used to soften the crusts. Schilling recommends a decoction of the wood and roots of the tondin, a species of paulinia. *Ledum palustre*, a syrup composed of sassafras and guaiacum, sarsaparilla and Peruvian bark, are also praised.† Dr. Monges states that Dr. Barton had informed him that he had cured it with the nitrate of silver, given internally: its effect upon the colour of the skin proves that it reaches the seat of the disease through the circulation, and that it may be probably useful; as assistants, frequent ablution with warm water, with gentle friction by means of a sponge, in the manner recommended by Dr. Morrison,‡ will be found useful. A sponge is dipped in luke-warm water, squeezed till dampness only remains, and then covered with oat-meal; the parts are rubbed with it for some time, and the operation repeated two or three times a day in proportion to the itching. After they are rubbed sufficiently, they are washed and gently dried. Oil is then applied by means of a brush, and the parts covered with slips of linen.

* Plumbe. For the mode of preparing the solanum, see the head Running Tetters, (impetigo) in this chapter. It succeeded in 21 out of 22 cases of lepra, with Dr. Creighton. In this city it has failed.

† Dict. des Sciences Medicales.

‡ See Edinburgh Medical and Surgical Journal, vol. xvi., as quoted by Plumbe

affections peculiar to infants, and known by the name of *red gum* and *tooth rash*. The affection is attributable to

The cracks and fissures in the hands have been cured by blisters, after the disease has been removed from other parts of the body.*

The use of the kali sulphuretum is recommended by Dr. Earnest, in the dose of two scruples; a solution of it was also tried as an external remedy. With Mr. Plumbe it did not succeed. Besides the use of these remedies, ointments made of the various preparations of mercury, calomel, white and red precipitate—also of tar and sulphur, a solution of lunar caustic, all deserve a trial: though it must be stated, with very uncertain results.

It was before observed that Dr. Willan, under the names derived from the parts, had described this affection as it appears on the lips, palms of the hands, prepuce, eyes, and scrotum. It is particularly liable to attack the hands of washerwomen and bakers; in the former, from the irritation of the caustic of soap, and the drying effects of meal in the latter. In these cases, the warm bath and lead water applied alternately for a few days, and afterwards the ointment of red precipitate; and if obstinate, the sulphur vapour bath will sometimes succeed. In this city, with the latter remedy, Dr. Emerson has done much good, particularly where the disease affects the palms of the hands.

When it attacks the lips and prepuce, some constitutional disorder will be found generally to be combined, to which attention must be paid; and in the disease of the prepuce, the fissures or cracks formed in it from the loose cellular structure of the part are much deeper than when it attacks the lips; the discharge continues glutinous till the disease is suspended; in this form the red precipitate ointment diluted to half its strength succeeds well.†]

THE LEPROSY OF LOMBARDY (PELAGRA.)

[This disease, which prevails in the lowlands of Lombardy, and in the plains and hills which border on the Alps, commences somewhat like lepra, with dusky red spots on the back of the hands and feet, attended with slight pricking and itching; small tubercles arise; the skin becomes dry, scaly, and divided by furrows and cracks. These symptoms disappear towards the close of summer, as also the accompanying debility, wandering and irregular pains in the back and head, vertigo,

* Dr. Cumming, Medical and Physical Journal, vol. xii., as quoted by Plumbe

† Plumbe

the very vascular and irritable condition of the skin in infant life, and is in some cases, perhaps, connected with indigestion. In its ordinary form, however, it is consistent with a state of perfect health, and requires little, if any, medical treatment.*

7. ECZEMA is characterized by a diffused eruption of vesicles without inflammatory bases. It has for its local causes the direct rays of the sun (*eczema solare*,) and for its constitutional causes the irritation of mercury in habits peculiarly predisposed. The constitutional distur-

and irregular appetite (without fever.) They return again in the spring of the second year, with more intensity. Partial sweats, spasms with disordered intellect increasing with the heat, and abating again in the autumn and winter : in the third year the disease appears earlier, and is more aggravated ; scorbutic and cachectic symptoms with weakness of the voluntary powers, debility, diarrhœa, dysentery, offensive breath and perspiration, with irregular appetite and digestion, dropsy, spasms, melancholy, mania, and idiocy terminate the disease. Moral and physical misery, produced by the wretchedness of degraded Italy, is supposed to be its cause. It is considered as an aggravated degree of lepra, and is the last of the scaly varieties.†]

* [It occurs in young infants, mostly on the head, neck, shoulders, and arms ; when the pimples are florid, and mixed with red patches, it is called red gum (*strophulus intertinctus*, fig. 13;) occasionally yellow vesicles, as in the violent form of prickly-heat, described above, appear, and terminate in scurf. As it is often connected with a weak and irritable state of the bowels, and indigestion ; and, if repelled, bowel complaints ensue, it is necessary to avoid exposure to a stream of air, or to use the cold bath. In general cleanliness only is requisite. If the eruption be repelled, a warm bath re-produces it, and dissipates the affections which are its consequences. The white form (*strophulus albidus*) differs only in the colour of the pimples ; the (*strophulus confertus*) rank red gum or tooth rash, appears during dentition, and has no peculiarity worthy of notice ; the (*strophulus volaticus*) is the same disease, attended with fever : the (*strophulus candidus*) white and large pimples, like prickly-heat in all its forms ; they require no treatment but moderate and cooling diet, with occasional laxatives. See plate, fig. 13.]

† Dr. Holland, *Medico-Chirurgical Transactions*, vol. viii.

bance attending this disease usually takes the form of slight feverishness. Its duration is very uncertain, seldom continuing longer than a month. Mild saline aperients, a spare diet, soft sponging of the affected parts, 'with parsly tea,'* and occasionally a warm bath, appear to comprise all that is important in reference to treatment.†

* Medical Recorder, vol. iii. p. 636.

† [The vesicles produced by exposure to the sun, give a good idea of all the species comprehended under the genus *eczema*, to which this disease belongs. The mercurial disease, (*eczema mercuriale*, *hydrargyria*), is characterized by heat, itching,—a sense of tingling, extending over the body, but particularly on the flexures of the joints, as the arm-pits and groins. These symptoms are succeeded by roughness and tumefaction of the skin, which is of a bright red, as in *scarlatina*; sometimes the colour is darker, and is gradually followed by minute vesicles, containing a transparent fluid, which gradually becomes opaque and milky; they at length break and discharge a fœtid, viscous, and sometimes excessively irritating fluid. The cuticle desquamates in large patches, and leaves the parts first attacked raw and covered with the same secretion. A slightly furred tongue, a great appetite, a weak and quickened pulse, with weakness, are at first the only constitutional symptoms; the new cuticle is destroyed and reproduced several times in twenty-four hours; the disease lasts for a day, and sometimes for weeks.‡

It is also produced by balsam copaiba, opium, antimony, &c. In these cases it continues only a short time. The accompanying state of the system, in its violent form, may be inflammatory, moderate, or typhoid, according to circumstances, accompanied with great debility and diarrhœa.

The nares, trachea, and bronchiæ, are sometimes violently inflamed.§ As many cases of this disease have occurred, when the patient was under the influence of a catarrh, it has been supposed to be owing to this cause, combined with the influence of mercury. Idiosyncrasy, favoured by cold and moisture, appear to be its true causes.||

Cure :—The entire omission of mercury, both internally and externally: the application of a solution of the acetite of lead, (3i. to a quart of water,) when the redness, heat, and itching first appear, and before the pustules are formed, and never after they break; the use of the warm

‡ Plumbe and Alley.

§ Rutter.

|| Alley.

8. PORRIGO (*favosa* of Willan) is a very familiar form of chronic cutaneous disease. It chiefly affects children from the period of dentition up to the fourth or fifth year of life, or even later. It is characterized by an eruption of straw-coloured pustules, scattered at times over the whole body, but principally observable on the scalp, the face, behind the ears, and about the ancles. A porriginous state of the *scalp* frequently accompanies the process of dentition, and is then perhaps rather salutary than otherwise; but by neglect this disease assumes a most frightful aspect. The pustules discharge a viscid fluid, which concretes into scabs, and the face (when that part is attacked) becomes enveloped in a mask, the *crusta lactea* of old authors, the *porrigo larvalis* of Willan. Porriginous eruptions occur in different states of the system. They are, I believe, chiefly attributable to a *gross* diet, and connected with plethora; but at times they arise in feeble and flabby habits, and appear in combination with cachexia and marasmus. The treatment of this form of disease must be regulated by the varying circumstances

bath is valuable to allay irritation, and prevent its return; sponging the affected parts with warm water, the application of meal, impure carbonate of zinc, finely levigated, to those parts which are denuded; mild laxatives, given so as to keep the bowels free,* and after them opiates,† constitute the most approved treatment. The bark is not indicated till the heat and fever are abated, and the tongue has become moist; wine in its typhoid form has been very useful. Abscesses are relieved by poultices of bread and milk, and the reproduction of the cuticle is assisted by equal parts of linseed oil and lime-water. Cerates composed of lead have been advised; its absorption, however, renders them dangerous.]

* Pulv. Jalap $\mathfrak{z}\text{ij}$. Super-tartrit. potass. $\mathfrak{z}\text{ss}$. m. intim. Take a tea spoonful every two hours. Or, \mathfrak{R} . Electuar. lenitiv. Sulphur. sublim aa. $\mathfrak{z}\text{j}$. m. f. dos. i. Or, Supertartrit. potass. $\mathfrak{z}\text{j}$. t. d.

† Hoffman's anodyne liquor: or camphor mixed with the opium, answers better than when given alone.

under which it occurs. In general, purgatives are indispensable; and the combination of scammony and calomel is well adapted to the class of children among whom it chiefly prevails.

Hydrargyr. Submur. gr. ii.

Pulv. Scammon. gr. iv.

Sacch. purificat. gr. ii.

M. ft pulv.

To be taken every other night.

9. PRURIGO is a papular disease resembling in its external characters lichen; but it is of a more chronic nature, and it is further distinguished by the excessive, the uncontrollable itching which attends it. It differs from psora in the circumstance of its never advancing to vesicle or pustule. Prurigo is in general *partial*; the generative organs and the back being its most usual seats. It often proves to elderly persons a most formidable ailment, interfering with every enjoyment of life. Cleanliness and the warm bath are the most important remedial measures; but the occasional use of purgatives should never be omitted. Lotions containing vinegar afford some relief. The Harrowgate waters have obtained celebrity for the cure of this complaint.*

* [Great itching, with or without pimples of the colour of the skin, form the disease called Itch (prurigo. See plate, fig. 16.) Uncleanliness aggravates the disease, producing pustules and vesicles, or the common itch.

Prurigo is sometimes attended with a sensation as if ants were creeping over or biting the skin (prurigo formicans.) The pimples are so minute as to be scarcely seen, and, owing to the irritation of scratching, are covered with scabs. It (prurigo formicans) sometimes terminates in a pustular affection like the running tetter (impetigo,) showing the difficulty of establishing precise specific differences in these diseases. Sometimes headache, sickness and pain of the stomach, precede its ap-

[Prurigo.

Lime slacked, ℥i.
 Carbonate of soda, ℥ii.
 Aqueous extract of opium, gr. x.
 Lard, ℥ii.
 M.

For prurigo pedicularis—

Red sulphuret of mercury, ℥iss.
 Muriate of ammonia, ℥ss.
 Lard, ℥ii.
 Rose water, ℥i.

[This ointment abates the prurigo, and diminishes the number of lice.]

pearance or follow its repression ; it then is the result of some constitutional disorder, and appears commonly in persons of a sallow complexion who are troubled with visceral disease.

Fish, and stimulating animal food ; wine, and spirituous liquors taken immoderately, produce it : white wine has also excited it in some peculiar habits. It is not contagious, nor does it depend always upon insects. It is most troublesome in spring, the beginning of summer, and is increased on going to bed, or standing before a fire. An eruption resembling this disease is produced by handling animals affected with the mange. It generally attacks old, but is most severe in young persons.

Medicine in this disease is frequently ineffectual. In the prurigo formicans, sulphur internally exhibited is recommended by Willan, in the following combination : Carbonate of soda ℥iii. Sublimed sulphur ℥ss., thoroughly mixed, and taken in the dose of ℥ss. every two hours till it operates : at the same time an infusion of sassafras, or of juniper tops, is given. Strong purgatives and sudorifics are injurious ; warm sea baths have succeeded in some instances ; tonics and the oxymuriatic acid are praised by Bateman ; the diet should be light, antiphlogistic, and easy of digestion, as whey, milk and water, and farinaceous substances.

Ointments in general are of little use : a decoction of the seeds of stavesacre, commonly called in this country larkspur (*delphinium staphisagria*), is recommended by Willan, where there are acari or other insects upon the skin. Baths made of alkalized sulphur are highly recommended, particularly in the itch of old men ; the artificial Harrogate water, as above stated, is worthy of attention, and is prepared in

10. IMPETIGO exhibits considerable diversity of external character. Vesicles, pustules, and regularly formed

the following manner, by Wilkinson, of London, an author of note : it is highly recommended—

R. Sodæ muriat. ℥ii.
 Magnes. sulphat. ℥iii.
 Sulphuret. potass. ℔i.
 Aq. fluvial. cong. xxxiv.

The salts must first be put into two-thirds of the water cold, and when dissolved the sulphuret of potash is next added, and then the remainder of the water at the boiling temperature.

Dr. Wilkinson treated a dreadful case of this disease, with diluted aromatic vinegar to the affected and bleeding spots, alternated every day with an ointment of sulphur and pitch, washed off every other day. Plummer's pill (pilul. stibii compos.) in the dose of four grs. at night, with the solution of arsenic, thrice a day. With regard to the Plummer's pill it may be observed, that Dr. Wilkinson preferred it as the best means of correcting the impaired condition of the digestive organs in the diseases of the skin generally;* and for acting directly upon the surface, the Fowler's solution he thinks the best remedy. Prurigo, lepra, psoriasis, pityriasis impetigo, porrigo, scabies, herpes, excepting (H. zoster) sycosis, and all their varieties, he cured upon this plan and with these remedies, failing however in one case out of twenty-five.

In one case recorded by Willan, owing to a species of pulex or flea, a strong solution of corrosive sublimate alleviated the symptoms. Decoctions of tobacco and of cocculus indicus did so also, though in a less degree ; the disease always returned. Other insects, the common louse (pediculus humanus,) and the body louse (pediculus vestimentorum,) produce a troublesome itching ; it is not true, that any insect connected with this disease is in any instance bred under the skin. The sulphur vapour-bath in all the species of itch is valuable, as it will destroy any insect from which it may originate. The oil of turpentine diluted with the oil of almonds, has the same effect.

When prurigo attacks the verge of the anus, there is more moisture about the anus than usual, a glutinous irritating fluid is secreted from the folds of the rectum, and after the perineum is abraded by the scratching, a serous secretion takes place, which substitutes this troublesome symptom for smarting and tenderness.†

* Emerson's Notes.

† Plumbe.

scales, may be observed at different periods of its progress; but it is at all times distinguishable by the violent cutaneous irritation which accompanies it. High inflammatory action, extensive pustulation and scabbing are its leading features. These are of course succeeded by a proportionate degree of relaxation in the vessels of the affected part. The causes of impetigo are very little known, and its treatment therefore is uncertain. Frequent

Where this form is constitutional, alteratives and tonics may be resorted to, but if it be local, it should be recollected, that the most approved experience justifies the idea, that it is dangerous suddenly to suppress it. Those remedies, therefore, which correct the diseased secretions, should be selected, and not those, which, from their sedative and astringent nature, have a tendency to repel them. Accordingly, to produce this effect, lime water ℥vi. and calomel ℥i., formed into a lotion, applied to the part, with a light and low diet, and saline purgatives, are the most uniformly beneficial.* The lotion may be applied by introducing a pledgit of lint into the rectum, and wetting the adjacent parts with it at the same time. This plan continued for a few days, so as to keep the folds of the rectum free from irritating secretion, relieves the disease. In cases of longer standing, a solution of corrosive sublimate, sufficiently strong to excite slight heat and smarting succeeds. Sometimes it vesicates, and confines the patient to his room. Mr. Plumbe, however, recommends it as a valuable remedy. The mercurial ointments succeed in some cases. When this disease occurs upon the prepuce, frequent ablution, and saturnine lotions relieve it; at the extremity of the urethra, it indicates disease of the bladder; in women, this form of it is frequently relieved by the use of bougies.

When it attacks the pudendum, the irritation is sometimes so great as to produce nymphomania; oxymuriate of mercury, in the proportion of two grains to the ounce of water, with diluted alcohol, may be tried; and, lest there should be excoriation, it will be prudent, in all cases, to commence with a weaker solution. Saturnine and saline lotions, as the acetate of ammonia, are useful, as also the ointments made with the salts of mercury.]

* Plumbe.

ablution, gentle alteratives, and the sulphur-vapour bath have occasionally proved serviceable.*

* [The running tetter consists in small pustules, breaking and discharging a thin, and sometimes a yellow humour, followed by scabs of the same colour; the cuticle is rough, reddish, or scaly, with a slight discharge from the cracks or fissures, or beneath the scabs: ulcers succeed, discharging a clear ichor; their cavities are considerable, though unequal, and are surrounded by pustules. In men who have passed the middle period of life, or are sedentary, their edges are often livid, and the limbs become œdematous. See plate, fig. 23, representing the vesicles of the disease.

The disease sometimes commences about the knuckles, and spreads along the fingers and thumb, wrists and fore arm; it is succeeded by a watery discharge, laminated scabs, a scaly and chopped cuticle. See plate, fig. 23, the advanced stage, with the scab partially covering it. Fresh pustules, attended with heat, soreness, and violent tingling follow, the skin becoming by its frequent repetition rough, harsh, and inflexible.† The disease appears only in the *colder seasons*, disappearing in the summer. Headach, indigestion, pain in the stomach, violent pains in the limbs and back, and cramps of the lower extremities often precede it. It attacks adults and persons of advanced age most frequently, and sometimes children. Intemperance, sudden changes of heat and cold, and violent exercise produce it. The predisposition to it is hereditary;‡ it is sometimes the result of local causes alone, as where alkali has been applied to the skin, by the use of soap, as in washerwomen; it appears also in the hands of bakers, from the application of meal. This description embraces all its varieties, comprehended under the species *figurata*, *sparsa*, *scabida*, *erysipelatos*a, and *rodens*. The differences constituting the two first, consist in the figure and distribution of the inflamed patches; the third is distinguished by the quantity of scabs; the fourth and fifth by the accidental variety of inflammation, which attends it. The same remedies are equally useful in all, with the exception of that which terminates in deep ulceration (*rodens*), which is entirely intractable, and terminates fatally; it is fortunately rare: Mr. Plumbe and Bateman never saw it, and Willan but once, when probably another disease was complicated with it.

The use of mild lotions to remove the scabs, and of alterative medicines,§ form the leading treatment of this disease; of the former, milk

† Willan and Bateman.

‡ Ibid.

§ Ibid.

11. *POMPHOLYX* is strictly a *chronic* cutaneous disease; but an opportunity has already occurred of offering a few

and water, infusion of bran, as a wash to remove completely the scabs. By some practitioners all ointments are avoided, from their slow penetration to the seat of the disease through the scabs, and also from the circumstance that they often increase it. Mercury, zinc, and saturnine applications in some cases, Dr. Willan states, occasioned an aggravation of the symptoms. Then it has been considered, and indeed it will be found generally expedient, to keep the skin moist by covering it with an oil skin after it has been washed, or, as Mr. Plumbe recommends, with linen wet with the sugar of lead.

Some cases bear the white precipitate ointment, and those of goulard, and the oxide of zinc. The author of this note has seen used with effect the following ointment: *R. calom. et hydrargyr. precipit. alb. ℥i. corrosiv. sublim. ℥i. axung. porcin. ℥i. m.* The case yielded more to this than any other remedy; it was necessary, however, at times to weaken it. The red precipitate ointment, with five or six parts of simple ointment, has also been found useful. The general precaution, however, above given on this subject, should be regarded. Lotions composed of digitalis and poppy heads with mallows, sometimes alleviate pain; they, however, leave the parts so stiff, that they cannot be continued. Sea bathing, both warm and cold, have also been found of advantage. A wash of the prussic acid in this form, *R. acid. prussic. ℥iii. alcohol. ℥ss. aq. distillat. ℥viiss. m.* has been also used with success where the disease is not extensive; it succeeds peculiarly well in subduing the inflammation surrounding the diseased spot; the scabs, however, must be previously removed. The sulphur vapour bath has been used with great success, and, in the opinion of Dr. Emerson, succeeds best in those cases where the discharge is purulent. The use of Plummer's pill (*pil. stibii. compos.*) with the decoction of sarsaparilla, is recommended by Willan. The system should be treated according to its state, administering tonics and purgatives as they are required by the symptoms. Sulphur, in the milder forms and first stages of this disease, given in small doses, so as not to purge, has been advised, particularly when combined with nitre or cream of tartar, at the same time making use of tepid ablutions, and the application of the oil skin; the sulphureous mineral waters are also found to be valuable: if sent to a distance, they should be bottled at the spring, as, on exposure to the air, they soon deposit the sulphur in an ash-coloured precipitate, in consequence of the hydrogen uniting with the oxygen of the atmosphere, and

remarks concerning it, which precludes the necessity of further notice.

12. ECTHYMA (fig. 3.) and RUPIA (fig. 9.) are different grades of that form of pustular eruption which occurs in debilitated habits. The system being weak, the vessels of the skin easily give way, either spontaneously or from very slight causes, and there is no sufficient energy in the constitution to repair the injury. Obstinate ulcers, and scabs resembling limpet shells (the true rupia) follow.

thus letting fall the sulphur held in solution.* The Lisbon diet-drink, decoctions of sarsaparilla and cinchona, with antimonials and the fixed alkalies, have been found extremely useful in obstinate cases; the hydrargyrus cum creta, with the pill of Dr. Plummer at the same time, is also recommended; the decoction of the solanum dulcamara, as prescribed by Dr. Creighton, has also succeeded. R. Stipitum dulcamar. $\mathfrak{z}\text{i}$. Aq. puræ lib. jss. Boil to one pound, and when cold strain it. Let the patient at first take two ounces thrice a day, to be gradually increased, till a pint is taken in the course of the day; if it produce uneasiness, the addition of the compound spirit of lavender relieves it; in weak and nervous people a smaller dose should be given, as it sometimes is followed by nausea, palpitation, and vertigo.

An affection of the ears, bearing the character of this disease, is described by Mr. Plumbe; it appears principally among females, and exhibits, if not minutely examined, an abraded state of the part, with much redness, and a slightly fluid secretion, attended with troublesome itching and heat. On examination, the cuticle appears to have been removed by the breaking down of the vesicles, and the discharge of their contents, in other cases the vesicles are still seen, and are ruptured by the slightest force.

This disease occurs both in delicate and robust habits, and is alike ineffectually treated by constitutional remedies, whether debilitating or the contrary. The usual sedative washes are of little value; the black lotion, calom. $\mathfrak{z}\text{i}$. aq. calc. $\mathfrak{z}\text{vi}$. and that of prussic acid given above, have been permanently useful, and when one fails, if used alternately with the other, they succeed. Cathartics, such as calomel and jalap, exhibited twice a week, without respect to the character of the habit, whether spare or otherwise, are the best internal remedies.]

* Plumbe.

Such a diseased state of the surface is very common after severe small-pox, and is occasionally observed to succeed measles. The disease is met with also in young persons who, with constitutions not originally strong, imprudently indulge in great excesses and irregularities. It frequently appears in the first instance upon the legs, but extends in course of time to every part of the body ; proving, in very many cases, exceedingly tedious and obstinate. The appropriate treatment consists in change of air, cold bathing, and the internal use of sarsaparilla, bark, and other alteratives, and tonics.

THE SCABIES OF ILLINOIS.

[The scabies of Illinois is most frequent in the winter, and nearly disappears in the summer ; it is attended with violent itching and eruption of pimples, filled with a clear transparent fluid, which gradually becomes purulent. The eruption consists of a succession of pimples, and not, as in scabies, of vesicles. It is distinguished from prurigo, by the itching being aggravated by sudden exposure to the air, by the eruption of prurigo commonly appearing in spring and summer, and affecting mostly young subjects : in the Illinois itch, the itching is relieved by exposure, and the eruption occurs mostly in winter, and affects persons of all ages.

Sulphureous and mercurial ointments, with saline purgatives, have been most useful ; nitric oxide of mercury, Venice turpentine, and lard, have been found to form the most useful ointment ; red precipitate ointment allays the itching ; a strong solution of sulphate of zinc also has cured it : an ointment made of the podophyllum, or May apple, has also succeeded.]

CORNS.

[Corns are produced by pressure, and cured by removing it. *Cure.*—Loose shoes ; softening the corn by applying equal portions of sulphuric acid and water to its substance, and defending it from pressure by strips of adhesive plaster united together and cut into a hole, so as to receive the corn. Layers of chamois leather, secured by adhesive plaster, answer better.*]

* Plumb.

WARTS.

[A wart is a thickening of the cuticle, produced by unknown causes. *Cure*.—A minute blister of cantharides, applied over the wart, and retained in this situation a day or two by adhesive plaster, softens it, so that it may be easily removed by the fingers or knife; lunar caustic, or a small portion of sulphuric acid, then applied, prevents its reappearance.* Other means are proposed; in general, removal by the knife, caustic, or the nitric acid, succeeds.]

THE FISH-SKIN DISEASE (ICTHYOSIS.)

[Sometimes the cuticle is affected with chronic inflammation, attended with heat and a gradual thickening of its substance, which grows dark, hard, and cracks like an old wart. This form is seated generally on the arms and legs, and is termed the fish-skin disease (ichthyosis.) See plate, fig. 22. Its causes are unknown, and it appears generally to be entirely local. It sometimes, however, extends over the body, is hereditary, and appears shortly after birth. The exhibition of pitch, arsenic, and the application of ointments, frequent soaking the parts in warm water, recommended by Willan, were completely unsuccessful in the experience of Mr. Plumbe. With him, adhesive straps, applied as tightly as they could be borne over the diseased parts, covered with a bandage, and wet with the cold lotion, gradually effected a cure in two instances. This disease occurs in the Barbadoes leg (a form of elephantiasis,) which has been usefully treated by pressure made by bandages. The horny excrescences of the skin also resemble it.† These excrescences are easily removed, and without danger, by the knife. Sometimes they arise from the cavity of encysted tumours on the scalp and over the spine; it is then necessary to remove the cyst, otherwise the horn reappears.‡]

DANDRIF (PITYRIASIS.)

The scurf of the cuticle, or dandriff, produces, when it accumulates, slight ulcerations of the skin, which, in children, and sometimes in grown persons, becomes troublesome, by ending in scald head (porrigo.) Dandriff sometimes succeeds great exertions, and is a proof of debility. Tonics and nourishing diet then relieve it. It is, however, generally a local disease, and is best cured by bathing morning and evening with a solu-

* Plumbe.

† Ibid.

‡ Bateman.

tion of xii. grs. of acetate of zinc, dissolved in $\bar{3}$ vi. of proof spirit, and the same quantity of water. It may be applied to the head with a soft sponge: if there is much itching of the skin, and the scales are large, it approaches to the dry or scaly tetter (psoriasis:) the sulphurous vapour bath is then valuable. Cleanliness, by repeated ablutions, is, in general, the best remedy.* Lotions, containing muriatic acid in the quantity of $\bar{3}$ i. to half a pint of distilled water, or of two or three drachms of the liquor potassæ to the same quantity of water, are recommended by Willan, as also sea bathing.† The varieties of this disease are pityriasis rubra, versicolor, capitis, and confusa. As they as yet have not led to any peculiar treatment, it is therefore unnecessary to describe them.

* Plumbe.

† Bateman and Willan.

THE END OF VOL. II.

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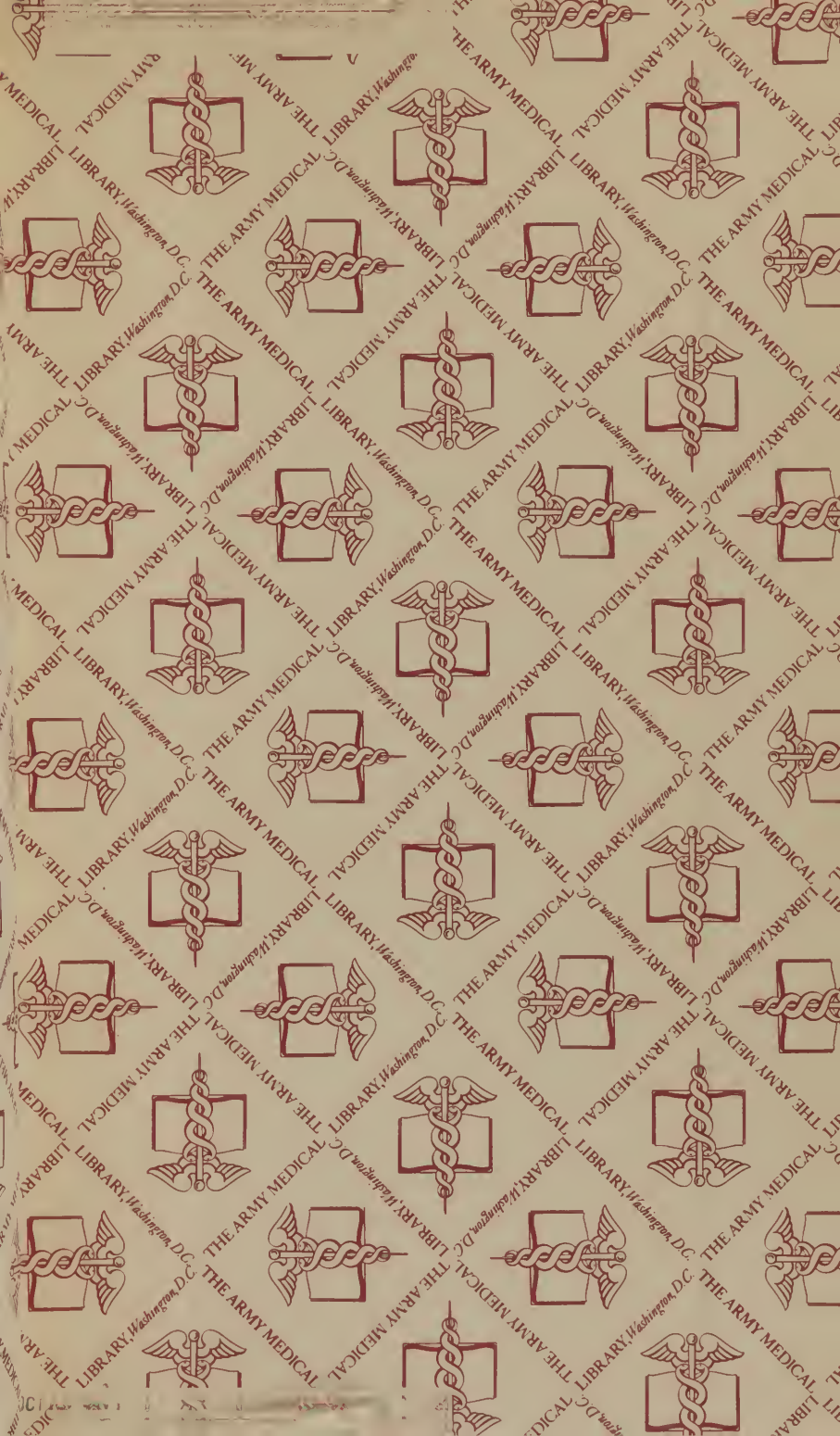
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